Antiquity

VOL. XXVII No. 106 JUNE 1953

Editorial Notes

DURING the last century and a half the 'live spots' of archaeology have moved round from one region to another. Egypt, thanks to Napoleon, was the first, then Assyria; and later on the Aegean, Switzerland, France, Britain, Sumeria and India have each in turn been centres of intense activity or of world-famous discoveries. The causes have been due to many factors amongst which are outstanding personalities, sensational finds and pure chance. The development of new techniques also concentrates attention on the regions where they are applied, and steps up the rate of discovery. New and improved techniques have made Britain and N.W. Europe a very live region during recent decades; in the Aegean the outstanding personalities of Schliemann and Sir Arthur Evans were perhaps the main factors. Sir Arthur's achievement was first to discover and then to describe the new civilization he revealed by his excavations at Cnossos in Crete. Since his work there ended, there has been a lull in that part of the world—a natural reaction after the initial excitement.

The time is now ripe for a renewal of interest and there are signs that it is beginning. Professor Blegen is publishing his excavations at Troy, a key site for the whole region, and at Pylos he has found another large cache of inscribed 'Minoan' tablets. Further afield, the excavations of Messrs Schaeffer and Dikaios at Enkomi in Cyprus (near Famagusta) have revealed an important and hitherto unknown Bronze Age town (probably Alasia), and amongst the finds is a much weathered and almost illegible inscribed stone in a script that seems to be akin to the Minoan and to date from the 12th century B.C. The last discovery is described in this number of ANTIQUITY (pp. 103–5).

There is one site that may yield important new evidence—Cnossos itself. The whole area of the Great Court of the Palace is occupied by unencumbered deposits of pre-Minoan, presumably neolithic, settlements. Evans's soundings, which reached bed-rock, showed these deposits to be six or seven metres (say 20 feet) deep. There is not much change in quality, and certainly no break in the stratification. There would be no need to excavate the whole area, but we must be prepared for surprises. Supplementary excavation from the steep east and south faces of the Palace Mound would be valuable as evidence for the latest strata, and for the transition from pre-Minoan to Early Minoan; for the latest strata have been stripped from the top of the mound, to form the

Great Court, and it is certain that these strata dipped outwards onto the slopes of the growing mound. Here there may be terrace-constructions and foundations which would make digging difficult and require revetment. The Western Court is of course available for supplementary digging : as the natural mound rises westward, the depth of deposit diminishes, and the stone-lined ' granaries ', bounding the West Court, have already been cleared. (We wish to thank Sir John Myres for his help in stating the facts just given).

The problem of excavating this neolithic level at Cnossos is simply one of finance and correct technique. We should of course mention also that the British School at Athens preserves a priority of interest in excavations there. The site is of outstanding importance for all prehistoric research in this part of the Mediterranean, and the overlying remains provide a rigid and secure *terminus post quem*. Radiocarbon might well give absolute dates. Any excavation there would help to revitalize Aegean archaeology, which is on the main line from which our own civilization ultimately comes.

In the article on Publication in our last number we said that, as it seemed, instruction in publication was nowhere given. That is not correct, and we are very glad to know it. Such instruction forms an integral part in the curriculum of the Summer School directed by Dr Philip Corder for the University of Nottingham's Delegacy for Extra-mural Studies. The students are taught survey and the drawing of plans and sections and of pots, and also how to prepare reports for publication ; this instruction is not given ' in the air ', but with original drawings, proofs in all stages, and so forth. The School is intended primarily for those who are members of evening classes and have not the chance of a university education. In the University of Edinburgh, the Honours Course in Prehistoric Archaeology, under the direction of Professor Stuart Piggott and Mr R. J. C. Atkinson, includes instruction in the publication of reports, the preparation of line-drawings and the taking and printing of photographs suitable for reproduction. Visits are also paid to printing establishments, so that students may get some idea of the processes of letterpress, composition and block-making. In Mr Atkinson's *Field Archaeology* (Methuen, 1946 : new edition in preparation) a chapter of 30 pages is devoted to this subject.

Swords, Rapiers and Horse-riders

by Colonel D. H. Gordon*

THERE is much confused thinking about swords, the way they were used and the influence of their users on their form. An extreme case is that of the late Harold Peake who, describing a sword-type, said: 'These weapons, which must have been used as hatchets as well as for slashing, are called leaf-shaped swords'[1]. He may, of course, have meant that they were used for hacking as well as for slashing—uses which, as I shall show, differ more than one would think; but it does sound as if he thought that the Late Bronze Age warrior used his prized sword for chopping firewood.

Take nomenclature and definitions first. In the apparent absence of agreed definitions, each writer has to invent his own or leave it to the reader to do so. Peake, on the same page as the sentence just quoted, makes his definitions by stating that the dagger gave birth to the dirk and the dirk to the sword. I shall adopt this clear and concise nomenclature, but divide swords into two groups—long and short.

The next step is to define what I mean by these names; unfortunately my definitions, being subjective decisions, will not necessarily meet with general approval. They are, however, essential if my meaning is to be understood; so I propose that, taking an average hilt with its pommel as being $4\frac{1}{2}$ inches, the following be arbitrarily adopted as the lengths of the respective weapon-types, measured from point to pommel:—[2]

Dagger: 14 inches or less.
Dirk: 14 to 20 inches.
Short sword: 20 to 28 inches.
Long Sword: over 28 inches.

Having thus cleared the ground, let us examine the first point which seems unsatisfactory, namely, the use of the word 'rapier'. Peake, in his definitions, says: 'The dirk is often called a rapier'; which invites the question: Can a dirk be called a rapier? If the word 'rapier' has any specific meaning at all, the answer must be 'no'. Professor Childe, for instance, mentions a 'rapier' 34 cm. (13.3 inches) long; according to my definitions this would not even qualify as a dirk (unless it is a blade measurement only[3]). He did not of course really regard it as a rapier in the generally accepted meaning of the word, but in calling it a rapier was merely using the conventional term for a thrusting weapon of the Middle Bronze Age.[4]

A rapier is wholly unsuited for dealing a slashing cut and is effective only in thrusting. But it is also a type of sword and so by my definition must be more than 20 inches long.

---

* The writer of this article, while not claiming experience of sword *versus* sword in actual combat, had his military training in the years immediately before World War I, when sabre and bayonet fencing were part of the skill at arms expected of an officer.

[1] *The Horse and the Sword*, 1933, by H. Peake and H. J. Fleure, p. 86.

[2] The definitions are objective in so far as I have handled very many of these weapons from all over the world, from Bronze Age swords and Luristan daggers to those of the present day.

[3] From Levkas, *The Danube in Prehistory*, 1929, by V. G. Childe, p. 249, note 2.

[4] Bronze Age nomenclature is singularly unfortunate in this respect as there is also the 'halberd', wholly unlike the weapon usually called by this name.

In archaeological writings, however, we find the word ' rapier ' applied to any sword which by reason of its shape or method of construction may be regarded as more efficient for thrusting than for cutting. This application is the result of certain opinions which we must examine in order to see whether they are justified or not. One opinion regards the rapier as developed from the dagger of which it was an elongation, this development preceding the cut-and-thrust sword. Another would regard a slashing sword as ruled out by a poor hilting device, or a balance towards the hilt, and by a lozenge-sectioned or strongly midribbed blade.

No one is likely to dispute that both dirk and sword are elongated daggers, or that the spear is just a dagger at the end of a shaft ; but it is by no means clear that the sword is an elongated dirk. Once the idea was formed of a longer weapon than the dagger of 14 inches, the way was opened for the production of a sword. We may well ask what prompted this idea of elongation. It could not have been a desire to have a thrusting weapon with a longer reach, for this had already been achieved long before by the spear. Knives and daggers must have been used for cutting the throats of game and enemies, but the edge could not be used effectively in this way unless the victim was in one's power ; to use this slash in battle the edge had to be extended by lengthening the blade.[5] It is interesting therefore to find that the earliest weapons we know in which the dagger-blade is lengthened are swords, not dirks, and have the general appearance of cut-and-thrust swords, not of rapiers. These weapons are the bronze swords from Mallia in Crete and that found in one of the royal tombs of Alaça Höyük (FIG. 1, c and d).

Of the Mallia sword, Sir Arthur Evans says : ' The sword, as in the case of all early weapons of this class, is of the rapier or thrusting kind[6]— ' and this in spite of the fact that the blade is from 2 to 3½ inches wide over two-thirds of its length. This sword, however, has no tang, but was apparently fastened to the hilt by four rivets ; the actual method of attachment is nowhere made clear, and to have no tang ensures it being classed as a rapier. There is a general tendency to ignore this sword and to regard it as a ceremonial object devoid of significance in the development of that weapon. Miss Lorimer adopts that view,[7] which postulates that the idea of a sword resulted from the making of a huge ceremonial dagger; but surely a ceremonial sword must have been an ornate copy of an existing non-ceremonial one. The sword from Alaça Höyük (82.4 cm. or 32.4 inches long), having an adequate tang, has been accepted as a cut-and-thrust sword.[8] The Mallia sword is so broad that in a line drawing it looks like a short sword ; it is in fact 38½ inches long from pommel to point, the hilt (including the crystal knob of 3 inches),

---

[5] It has been suggested that the cut-and-thrust sword was a response to armour, but it is more likely that the user of this form of sword, who had to come out of the shelter of his shield to fight, found himself open to spear and rapier thrusts, and took to wearing some form of breast-plate.

[6] *Palace of Minos*, Vol. II, pt. 1, fig. 163, p. 271f. Pendlebury in ' The Archaeology of Crete', 1939, p. 272, very rightly does not classify this sword as a rapier.

[7] *Homer and the Monuments*, 1950, by H. L. Lorimer, p. 262.

[8] *Prehistoric Migrations in Europe*, 1950, by V. G. Childe, fig. 139 from *Ausgrabungen von Alaça Höyük*, by H. Z. Kosay, pl. 81, 26. Prof. Childe in *Prehistoric Migrations*, p. 179, says :— ' A bronze weapon from the royal tomb MA[1] at Alaça Höyük dateable as early as 2000 B.C.', and in ' The Final Bronze Age in the Near East ', *Proc. Prehistoric Society*, Vol. XIV, pp. 184–5 :—' Near the beginning of the 2nd Millennium there comes from the tomb MA[1] at Alaça Höyük a tanged blade 80 cm. long '. This is a lower date by at least a hundred years than any yet proposed for this tomb and gives a welcome indication that the general dating of royal graves at this site and at Maikop may come down and with it that of the treasure of Asterabad.

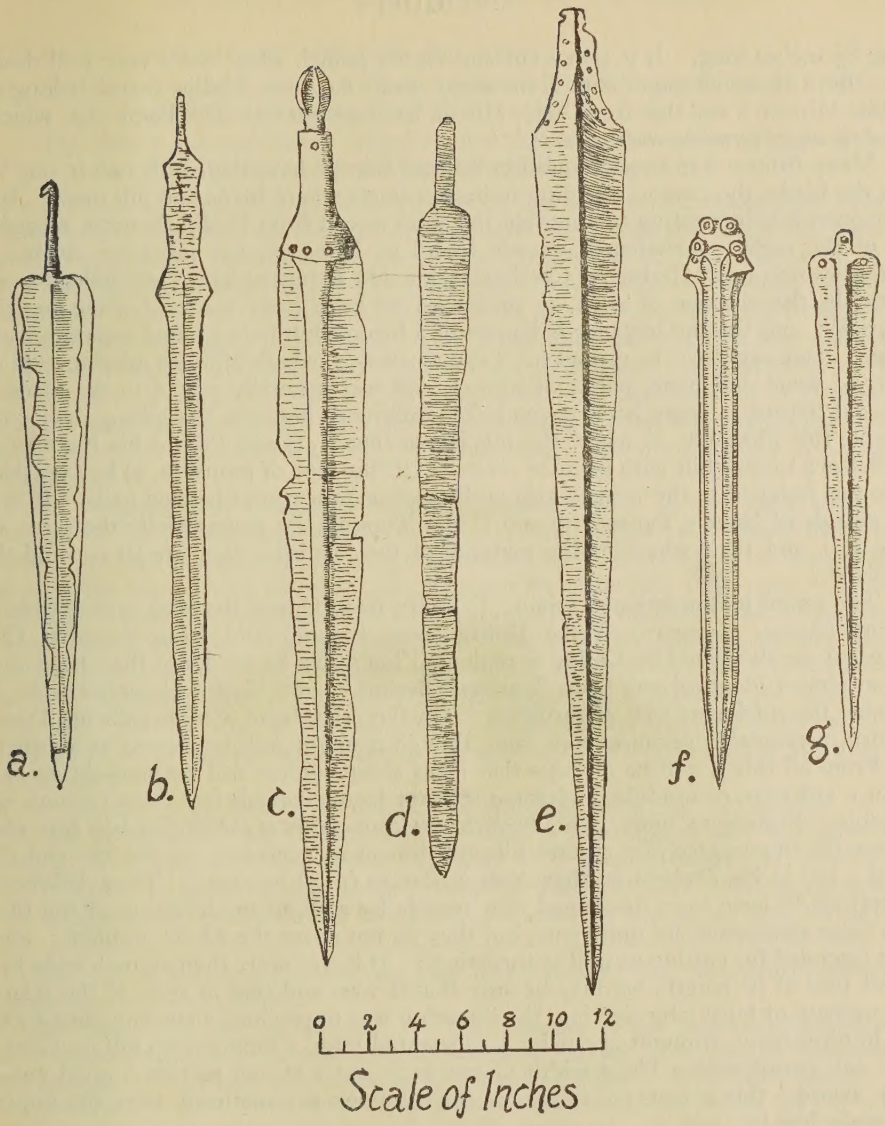


FIG. 1

a. Sword from Psemmatismeno, Cyprus (*after* Naue)
b. Sword from Ras Shamra (*after* Schaeffer)
c. Sword from Mallia, Crete (*after* Evans)
d. Sword from Alaça Höyük, Turkey (*after* H. Z. Kosay)
e. Shardana Sword from Gaza, Palestine (*after* V. G. Childe) (*by permission of the Trustees of the British Museum*)
f. Sword from Upper Bavaria (*after* Naue)
g. Sword from Byblos, Syria (*after* Schaeffer)

being 8½ inches long. It is also a cut-and-thrust sword, albeit not a very well designed one. Both these weapons date from about 2100 B.C., the Mallia sword belonging to Middle Minoan I and that from Alaça Höyük having been found in Tomb M.A. which has that date as its *terminus ante quem.*

Many Bronze Age swords found in Central Europe have their hilts cast in one whole with the blade, the casting retaining imitation rivets where blade and hilt meet. In this connection it is interesting to note that the short sword from Hadju Samson, regarded as one of the earliest leaf-shaped swords found in Hungary, has imitation rivets; that various swords from Germany, Czechoslovakia and Hungary have rivet-holes for a hilt, which, in the absence of such, is presumed to have been made of some perishable material[9]; and that no instance is known of a bronze hilt being found separate from its blade. Naue says that the grip of his Type III swords, where hilts are missing, was made partly of wood and bone, partly of bronze, and was generally joined to the blade by a half-oval fixture. There is no recognizable difference between the hilting device of his example (his Plate XIV, 2) where the hilt is lost (FIG. 1, f) and that of his Plate XX 3, 3c which has a bronze hilt with genuine rivets. Of this type of sword (A, a) he says that the blade was fastened to the winged grip with three or four round-headed nails. It is clear that swords of Naue's Types III b and c, and Type IV, are substantially the same as his Type A, a, and that, whatever the material of the lost hilts, they are all cut-and-thrust swords.[10]

The sword just mentioned (Naue, Type III, from Upper Bavaria), and swords from Vattina (Banat, Hungary), Velka Dobra (near Prague) and Rima-Szombat (North Hungary) are all classed by Childe as rapiers. There can be no doubt that these swords, and an almost identical one from Spandau (Berlin),[11] with blades 1½ inches wide, were intended for cutting as well as thrusting. On the other hand, Childe calls his Type A, o a sword, presumably because of its tang, though it might well be classed as a rapier.

From all this it will be obvious that ideas about rapiers and cut-and-thrust swords are in a sad state of muddle, and some attempt to distinguish fact from opinion seems desirable. Professor Childe, in his *Prehistoric Communities of the British Isles* (pp. 169 ff), stresses the importance of a stouter hilt-attachment as necessary for the cut-and-thrust sword; but in his *Prehistoric Migrations in Europe* (p. 7) he says: ' These [Mycenaean rapiers] could have been developed into swords by a slight modification of the blade '. Both these statements are quite true, but they do not cover the whole problem; was the blade intended for cutting as well as thrusting? If it was more than an inch wide for the greater part of its length, we may be sure that it was, and that in spite of the relatively poor method of hilting by riveting, the intention was to produce a cut-and-thrust sword. The improvement, brought about by a substantial tang, a tongue-grip hilt or a cast hilt, made any sword with a blade-width of one inch and a strong section a good cut-and-thrust sword; this is fact, not intention, for it follows automatically from the improved hilting-devices.[12]

---

[9] A wooden hilted sword is shown in text tafel A of E. Sprockhoff's *Die Germanische Griffzungenschwerte*, but it seems to be a flange-hilted sword with wooden hand-grips. See also the same author's *Die Germanische Vollgriffschwerte* where it is shown in series with such swords.

[10] *Die Vorrömische Schwerte*, 1903, by J. Naue, pp. 31 and 45.

[11] Childe, *The Danube in Prehistory*, fig. 146a and pl. II, A1, A2 and A3.

[12] Naue provides a number of examples—Pl. V, 5, the sword from Hammer nr. Nurnberg usually called a rapier; Pl. X, 2, tongue-grip; Pl. XVIII, 5, long tang; Pls. XX, 6 and XXI, 3, cast or riveted hilts, all of which have one inch width blades.

Let us now return to our definitions and state :—

(1) that a rapier is a sword wholly unsuited for dealing a slashing cut, effective only for thrusting ;

(2) that a cut-and-thrust sword is one that can be used as effectively as its form permits both for cutting and thrusting.

We are now in a position to examine various statements and assess their validity. Sir John Myres in *Who were the Greeks* ? (p. 429) is of the opinion that Danubian warriors, accustomed to using a battle-axe, produced the slashing sword from the rapier ; this opinion, once generally accepted, is now held less firmly. Good shaft-hole battle-axes were common enough in Western Asia from 2000 B.C. onwards for this rapier-sword development to have taken place there, but it is unlikely that there is any connexion. Naue mentions two short swords from Cyprus ; one (Taf. II, 4) which he calls ' ein sehr grosses Schwert ' though it is only 60 cm. long, came from the cemetery of Psemmatismeno and is doubtfully connected with that Cypriote polished red ware which has animals in relief (FIG. 1, a). The other sword (63.8 cm.) came from the cemetery at Lamberti near Tamassos.

These weapons were unearthed by post-Cesnola looters, so that their association with any particular grave-goods, such as the pottery, seal, daggers and chisels mentioned, is suspect. However, this type of weapon is well-known as a dagger or spearhead[13] ; and though the high dating of Naue can no longer be sustained, 2100–1900 B.C. should cover them, so that they belong to the period immediately following that of the Mallia and Alaça Höyük swords. To the same period, but probably towards its end, belongs yet another short sword, about 26 inches long when complete with hilt ; it formed part of Hoard D, connected with Building II (the Syrian temple) at Byblos (FIG. 1, g). It is clear therefore that the idea of swords, none of which can be strictly classed as rapiers, was not foreign to the Eastern Mediterranean, and other early swords of this type may well be forthcoming.

Four swords, mentioned by Childe (*Prehistoric Migrations*, p. 179) as short swords, were found by Schaeffer in a hoard in the Palace of the High Priest at Ugarit (Ras Shamra)[14]. The longest is not about 1 m. long as originally stated but 75 cm. (29½ inches)[15] ; being unfinished, their length complete with hilt and, possibly pommel, is difficult to determine, but it should be roughly between 26 and 29 inches—well on the

---

[13] These may in fact be spearheads, but their length coupled with the relative shortness of their tangs make this very unlikely.

[14] Miss Lorimer, p. 265, op. cit., says :—' The discovery in the Mycenaean settlement at Ugarit of a factory engaged in the production of swords of this type ', but gives no references. I can find nothing in Schaeffer's *Ugaritica I* or *Stratigraphie Comparée* which bears this out. He says in *Ugaritica I*, p. 99 :—' Nos constatations à Ras Shamra montrent que les premiers objets mycéniens avaient été importés à Ugarit par la voie du commerce. A partir du XIVe, et pendant le XIIIe siècle, par contre, il y avait à Ugarit une veritable colonisation Mycénienne '. This hoard however dates to *c.* 1400 before the great destruction of *c.* 1365 and therefore before the establishment of the colony.

[15] Fouilles Françaises de Minet-el-Beida et de Ras Shamra, *Bulletin de la Société Préhistorique Française*, T. XXVII, No. 3, 1930, in which it says :—' Sur le tas reposaient d'abord 4 épées dont la plus longue atteint 1 mètre '. Dr Schaeffer in a private letter tells me that its correct length is 75 cm. The exact length of these swords is difficult to determine as they all appear to be unfinished and have what appear to be projections of superfluous metal left in the aperture of the mould standing off from the hilt.

long side for cut-and-thrust swords of their date, which is about 1400 B.C. They are as good as, or better than, swords of similar date from Central Europe. The armed riders on the Mycenaean vases of Ras Shamra of about 1300 B.C.[16] antedate those of Central Europe by some 300 or more years.[17] In view of this evidence it is not unreasonable to conclude that both horse-riding and the use of swords were established in the Eastern Mediterranean as early as in Central Europe, if not earlier than there. That the fashion for long cut-and-thrust swords persisted in this area is shown by the Syro-Hittite sculptures of Sinjirli (*c.* 1000—800 B.C.)[18].

The words ' slashing ' and ' leaf-shaped ' are used to describe the whole range of Central European swords of the Middle and Late Bronze Age, irrespective of whether they were in fact leaf-shaped or particularly suitable for slashing. Very many—I suspect the majority—of the cast-hilt and tongue-grip swords earlier than Period D of Central Europe were straight-sided; in Childe's *Prehistoric Migrations*, out of seventeen European swords illustrated only four can be said to be leaf-shaped; reference to the works of Sprockhoff and Naue will bear this out. This point is emphasized in a short note in *Man* 134 (1931) by Sylvia Benton (' An unlucky sword: the leaf-shaped blade from Mycenae '). Though she makes a great point of the fact that the blade only swells by one millimetre and was probably straight when first made, she persists in calling it leaf-shaped, a distinction originally conferred on it by inaccurate copying. With regard to Greek cut-and-thrust swords in general, this point is also quite clearly made by Miss Lorimer, who says: ' It is the bronze sword known as " Naue, Type II " and sometimes (so far as Greece is concerned, misleadingly) as the leaf-shaped sword ', and ' in the Greek specimens the edges of the blade are usually parallel until they taper to a point '.[19]

It can also be stated quite definitely that very many leaf-shaped swords are far too short to be suitable for slashing. The longest sword in the Aranyos (Hungary) hoard,[20] a fairly representative collection, is 25.2 inches and the shortest 21.2 inches; many leaf-shaped swords are less than 25 inches, and with a blade of only 20 inches or less are better adapted for thrusting than for slashing. Let us therefore drop these terms ' leaf-shaped ' and ' slashing ' except for the rare occasions when circumstances require them, using instead the term ' cut-and-thrust sword '[21].

Genuine rapiers are comparatively scarce. The true rapiers illustrated by Evans (*Palace of Minos* IV, figs. 832 and 841) exactly satisfy the conditions my definition demands. One can describe as ' cut-and-thrust ' swords those long ones with a short tang from the cave of Arkalochori, all of which are just over one metre (39 inches) long, tapering 6 to 3 cm. to an abrupt point. They were probably hilted by the method suggested by

[16] *Ugaritica II*, 1949, by C. F. A. Schaeffer, p. 159, fig. 61, and dating and comment on this early appearance of mounted warriors on p. 158.

[17] There is no real evidence that suggests the presence of mounted warriors in Central Europe before Hallstatt times; see Childe in *The Danube in Prehistory*, pp. 363, 388, 392, 402, and *Migrations*, p. 221. Dating, here and throughout, is based on Schaeffer's *Stratigraphie Comparée et Chronologie de l'Asie Occidental* and the Chronological table in C. F. C. Hawkes' ' From Bronze Age to Iron Age ', *Proc. Prehistoric Soc.*, Vol. XIV, 1948, p. 216.

[18] *The Aryans*, 1926, by V. G. Childe, Pl. I; *The Early History of Assyria*, 1927, by Sidney Smith, Pl. XIX a; *La Civilisation des Hittites*, 1948, by G. Contenau, Pl. II.

[19] *Homer and the Monuments*, p. 264.

[20] V. G. Childe, *Prehistoric Migrations in Europe*, fig. 156.

[21] Confirmation of this view is given by the fact that Prof. Childe in his paper ' The Final Bronze Age in the Near East and in Temperate Europe ', *Proc. Prehistoric Soc.*, Vol. XIV, 1948, uses the term ' cut-and-thrust sword ' throughout.

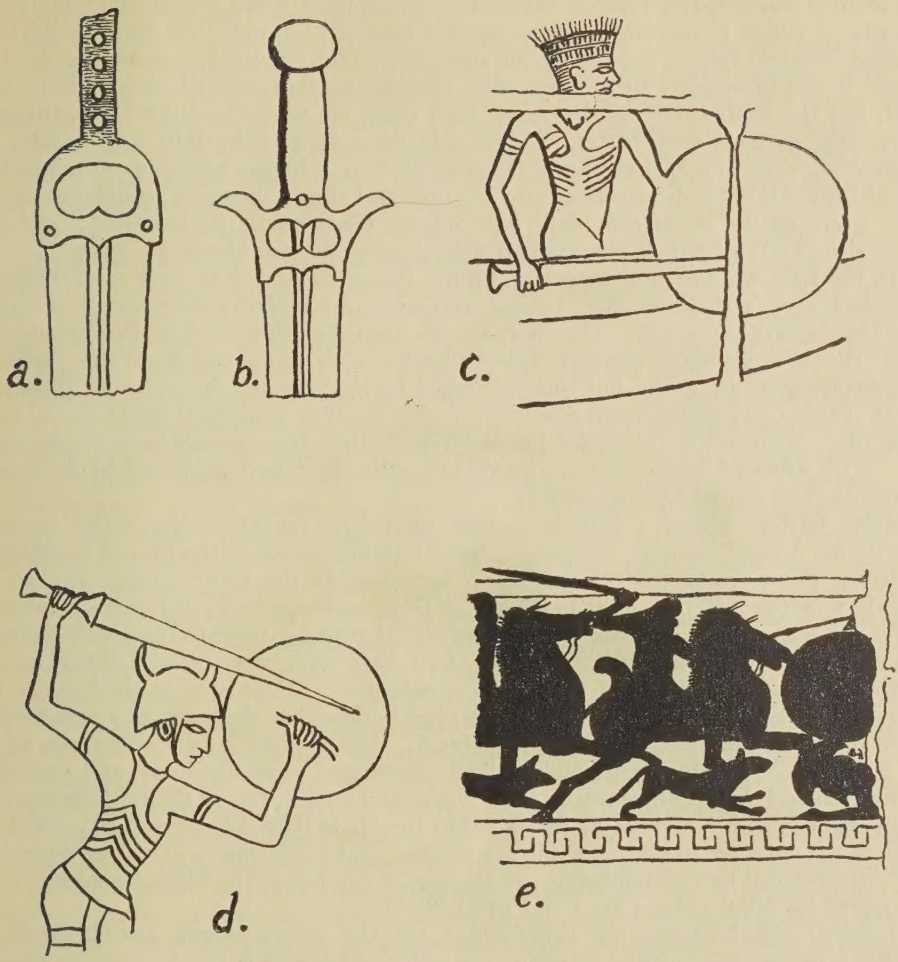


FIG. 2

a. Sword hilt from Shaft Grave, Mycenae (*after* Evans)
b. Suggested hilting of short-tanged Cretan and Mycenaean swords (*after* Naue)
c. Philistine Sea-raider (*after* Bossert)
d. Sherden Sea raider (*after* Lorimer)
e. Cimmerians, Clazomenian sarcophagus
(*by permission of the Trustees of the British Museum*)

Naue,[22] where a metal extension forward of the hilt supports and locks the blade (FIG. 2, b). This method was employed also at Mycenae ; Evans illustrates a hilting from one of the shaft-graves which is an improvement on this type (FIG. 2, a).[23] As has already been indicated, efficient hilting is possibly the most important feature of a good sword. It is difficult if not impossible to discover why tangless or short-tanged swords were produced, but the hilting-devices that went with them are as well adapted for cutting as for trusting, perhaps even better. When a blade is secured by four large rivets, the impact strain even of a hacking cut is taken by all four, whereas a wiping cut might well put but little strain on the rivets at all ; an impeded thrust, however, could put such a lateral strain on the rivets that their hold on the blade would be loosened ; and this applies also to Cretan and Mycenaean swords hilted in the way shown by Naue.

In the Late Minoan II cemetery at Zapher Papouras, and in the five recently found adjoining graves of the same date, groups consisting of a rapier, a short sword or a dirk, and a large spearhead occur. The short swords are those illustrated by Pendlebury and Childe, the latter grouping them as rapiers together with others which are true rapiers.[24] No measurements are given, but that published by de Jong and Hood in the *Illustrated London News* is 24½ inches from point to pommel.[25] The important point brought out by the illustration in the *Illustrated London News* is that these swords have a substantial tang. This efficient hilting-device, combined with the relatively broad blade, makes this type a good cut-and-thrust sword.

Most writers regard a leaf-shape that carries the weight towards the point as essential for a good slashing weapon. Here, I think, comes in the idea of hacking—a prodigious down-stroke that cleaves one's opponent to the chine. Such strokes are certainly sometimes visualized as being struck from on horse-back, in fact most German writers and some others regarded the cut-and-thrust sword as invented to satisfy the need for a new weapon suitable for horsemen. As I have said, most cut-and-thrust swords are straight-sided, or, when leaf-shaped, have only a very slight swell in the blade. But if one studies the evolution of weapon-types, one notices that there comes a point where certain tendencies become absurdly exaggerated. Just as double-handed swords of the 16th century A.D. became grotesquely spiked, wavey and more unwieldy, and rapiers of the late 16th and early 17th centuries grew longer and longer,[26] so in the Late Bronze Age we find swords with a wide bulbous spread to the blade (Childe's B5 and C4) which do not mark any increase in efficiency but are clumsy in the extreme. The absurdities that could be produced by this tendency—an atrophy of the hilt as the blade broadened—are exemplified by Naue (Plates XI, 4 and XXVII, 8).

Efficient developments of sword-types are the carp's-tongue swords and the Scandinavian cast-hilt swords, in which the point of balance is much closer to the hilt than to the point.[27] The carp's-tongue sword can only be explained as distributing the

---

[22] loc. cit., Tafel IV, 3.

[23] *The Palace of Minos*, Vol. IV, fig. 828.

[24] Pendlebury in *The Archaeology of Crete* shows a group of rapier, short sword and spearhead, Pl. XXXVI, 1. V. G. Childe, *The Aryans*, fig. 25, 1.

[25] ' Light on the last and Militarist Phase of Minoan Crete ', by Piet de Jong and Sinclair Hood, *Illustrated London News*, Jan 12, 1952.

[26] Queen Elizabeth issued an edict limiting the length of swords, and guards at city gates checked the swords of travellers, with a smith in attendance to snap the blades to the permitted length.

[27] Shetelig and Falk, *Scandinavian Archaeology*, 1937, Pl. 14, 6 and p. 130.

weight of the blade so as to improve the balance while at the same time combining a long cutting edge with a sharp thrusting point.

Let us now consider the employment of these weapons. When one examines contemporary representations of warriors one finds that the spear, the dagger and the bow were the common weapons of the Late Bronze and Early Iron Ages, and indications of the manner of using swords are scarce. Pendlebury suggests that the Minoan rapier argued for sword-play which would make it impossible to use the huge shield, and he puts forward the suggestion of sword and dagger fencing.[28] The not very reliable battle scenes on Minoan seal-stones show the ' figure-of-eight ' and ' tower ' shields being used with spears, and the rapier or dirk without a shield. In the sea-fight depicted at Medinet-habu one of the Philistines has a long sword whose point is no longer traceable; it appears to represent a long parallel-sided cut-and-thrust sword with a blade of about 30 inches and a hilt of 6 inches (FIG. 2, c). In this same fight the warriors with horned helmets have the Shardana sword which, though primarily intended for thrusting, could, if the Gaza specimen (FIG. 1, e) is any criterion, be used quite effectively for cutting.

Miss Lorimer, to my mind quite rightly, stresses the suitability of this sword as a cutting weapon, having arrived at this conclusion by the only really satisfactory method—that of taking it in her hand and getting the feel of it. (If all writers on swords had been able to do this, I am sure it would have modified their conclusions). This opinion of hers is confirmed by the warrior she illustrates, who is about to deal a wiping cut with a weapon of this type. With his long sword, central-handled shield, stout pot-helmet with chin-strap and laminated corselet, this sea-raider was exceptionally well equipped (FIG, 2, d).[29] At the same time I venture to suggest that the Protogeometric iron sword of about 30 inches long (her Fig. 34), when new, was quite as effective for cutting as for thrusting; this shows the importance of estimating the potentialities of a weapon by means of its probable appearance when actually in use.

Few monuments of the 2nd millennium help us to determine how these swords were used, and we have to use our common sense and imagination. The idea that the cut-and-thrust sword arose from the need felt by horse-riding warriors of replacing their battle-axes by a more up-to-date weapon for dealing their accustomed downward swipe is a product of the imagination receiving little support from archaeological fact.

Professors Childe and Grahame Clark have conclusively shown that the battle-axe folk of Central Europe neither rode nor possessed chariots, and that riding did not become usual there until Hallstatt times, when cut-and-thrust swords had been in use for at least 400 years.[30] Two things were needed for efficient sword-combat on horse-back—a horse big enough to give one the advantage of height and weight, and stirrups. With a long heavy sword but without stirrups your slashing horseman, taking a good broadhanded swipe at his foe, had only to miss to find himself on the ground. Most of the early representations of horsemen show them armed with spear and shield, and even with these horseback fighting without stirrups must have needed a good grip on a nice narrow horse. The Norsemen, particularly the Icelanders, habitually rode but fought on foot, and it is more than likely that even the Hallstatt ' Knights ' did little actual fighting on horseback.

The warriors on the Hallstatt urns mentioned by Childe[31] are so schematic that they only indicate the fact of horse-riding; they appear to be outriders escorting a waggon.

[28] loc. cit, p. 272.

[29] *Homer and the Monuments*, p. 228, fig. 23, b.

[30] ' Horses and Battle-axes ', by Grahame Clark, ANTIQUITY, March 1941 : ' Horses, Chariots and Battle-axes,' by V. G. Childe, ANTIQUITY, June 1941.

[31] *Prehistoric Migrations*, p. 221.

In any case mounted warriors do not prove that the cut-and-thrust sword, or even the less effective blunt-ended cutting sword, were developed as cavalry weapons, or that cavalry, even in the widest sense of the word, existed in Europe in the 9th century B.C. Cavalry consists of a large number of mounted men capable of concerted action. The Assyrian light cavalry introduced by Tukulti Ninurta (889–884 B.C.) were possibly, as suggested by Sidney Smith, the first of their kind.[32] Surely some distinction must be made between semi-nomadic peoples whose daily life was spent on horse-back, whether at peace or war, and horsemen solely and deliberately organised as a mobile instrument for battle. Mysia and Lydia produced good cavalry, and so did the Ionian cities of Colophon and Magnesia; Phrygia relied on the horsemen of Cappadocia. It is evident that in Asia Minor there was a very early tradition of organising horsemen for war. Crete, which provides little or no scope for cavalry, had horsemen at an early date, and the early (11th century) representation of a rider armed with lance and shield on a Protogeometric vase from Mouliana[33] is probably due to contacts with the Asiatic mainland rather than with Greece.

A. R. Burn thinks it was probably the Kimmerioi who introduced the ' great horses ' into Europe, and that ' it may have been from them that their kinsmen the Thracians and the Greeks of Thessaly and their kinsmen the Paiones—all notable horsemen and horse-breeders—received their thoroughbreds[34] '. Childe suggested that I should look at the horsemen brandishing long broadswords on the lid of the Clazomenian sarcophagus.[35] One of the bands on its lid shows nine barbarian riders (three of whom have been unhorsed) attacking Ionian hoplites. Four of those mounted have long swords (FIG. 2, e); one has a lance with a decorated butt ferrule; and the one on the left has no distinguishable weapon. All have large bow-cases. The bow-case was attached to the man, not the horse, as is shown by that of the dismounted rider on the right, who, though now not very clear, is in an attitude suggesting that he is using his bow.[36] Dr Murray regarded these horsemen as being Cimmerians engaged on a sudden raid on the Ionian Greeks. Such encounters certainly occurred in the mid 7th century B.C., and even if discontinued would still be well remembered as important events in the first half of the 6th century B.C. when they were depicted on the sarcophagus. These barbarians are accompanied by their war-dogs, of a prick-eared wolf-dog type (FIG. 2, e) irresistibly recalling Herodotus's description of the fight between the Paiones and the Perinthians, ' man to man, horse to horse, and dog to dog '. (Book VI, i).

Neither the Cimmerians nor these barbarian horsemen are easy to identify. The Cimmerians can almost certainly be identified with the Gimirrai of the Assyrian inscriptions and the biblical Gomer; and they may have been mixed, chiefly Indo-European, peoples; the word may be generic like Umman Manda, a term also applied to them by the Assyrians.[37] Sir Ellis Minns in one place says: ' If the Cimmerians were Thracian

---

[32] *Cambridge Ancient History*, Vol. III, p. 10.

[33] Lorimer, loc. cit., p. 154, fig. 10.

[34] *The World of Hesiod*, 1936, by A. R. Burn, p. 160.

[35] The lid of this sarcophagus was badly damaged by fire-bombs, but it is fully illustrated in *Terracotta Sarcophagi in the British Museum*, by Dr A. S. Murray, 1898.

[36] Though many of the Ionian hoplites depicted have good serviceable swords, they are not shown using them even in the close-quarters mêlée shown in loc. cit., fig. 3. Spears are in every instance being used to deliver an over-arm jab, which, if actually employed, would have been quite useless against a man armed with sword and shield.

[37] Sidney Smith, *Cambridge Ancient History*, Vol. III, p. 117.

it would account for the Thracian element that played a leading part in all the history of the Bosporan kingdom '. He then notes that the Clazomenian horsemen are usually regarded as Cimmerian, and suggests that perhaps on the other hand they may be Treres from Central Europe. In the same chapter however he says : ' Thracian Treres were raiding into Asia Minor '.[38]

Both Treres and Cimmerians may therefore be regarded as Thracian ; both Herodotus and Strabo believed the Phrygians to be of Thracian origin. It would appear therefore that the Cimmerians, Thracians, Phrygians and Treres—some of these names being synonymous or inclusive—were all alike horse-riding people of non-Scythian stock. But early Greek writers vaguely included all pre-Scythic peoples of the South Russian steppe in the term Cimmerian. Those groups of these peoples that lived in Thessaly, Macedonia and Thrace south of the Danube, both Greek and non-Greek, were the first therefore to produce cavalry in Europe, and eventually such cavalry leaders as Derdas of Elimia, Jason of Thessaly and finally Alexander the Great.

We know little about the horsemen of Central Asia before the 4th century B.C. W. M. McGovern shows how the whole material culture of the Turanian peoples was transformed about 400 B.C. by the introduction of horse-riding from the West. He also mentions how the Chinese ruler of the Kingdom of Jao (325–298 B.C.) ordered his soldiers to copy the Huns and fight from on horseback, using the bow and the long sword.[39] Now if the long sword came from the West it did not come from the Scythians who used a short one (actually a dirk), but from the Sarmatians. If these last may be equated with the Sauromati they may have got their long swords from the Thrako-Kimmerians ; or, if they were in any way related to the Medes, they may have inherited the long Talish swords of Khoda-daud-Kopru, Veri and Hovil.

Peake tells us also that the Sarmatians at a somewhat later date used a sword with a ring pommel which appears in China in Han times.[40] The oldest known Chinese swords are those of Olov Janse's class B, which he assigns to the 4th century B.C. at the latest, but possibly earlier.[41] Long swords are older than horse-riding ; so of course is the use of the bow ; but the combination of all three seems to have originated with the Thrako-Kimmerians in the 7th century B.C., and to have spread eastwards with the Sarmatians.

In conclusion, some miscellaneous and not irrelevant points may be considered. Widespread and devastating incursions have been postulated as the result of the appearance of armed horsemen, but these appear to have succeeded only when directed against unorganised peasant communities. But it cannot be shown that before the 4th century B.C. any country made conquests by exploiting cavalry, contrasted with horse-riding used to increase mobility, as a decisive element on the field of battle. Although it has often been alleged that the sword was a weapon evolved by horsemen, of all Xerxes's mounted contingents only the Caspians had some form of sword.[42] Xenophon gives the most detailed instructions for the use of the lance by cavalry, but only mentions quite

[38] *Cambridge Ancient History*, Vol. III, pp. 189 and 195.

[39] *The Early Empires of Central Asia*, 1939, by W. M. McGovern, pp. 100–1.

[40] *The Law and the Prophets*, *The Corridors of Time*, Vol. IX, 1936, by H. Peake and H. J. Fleure, p. 12.

[41] ' Notes sur quelques Épées Anciennes trouvées en Chiné ', by Olov Janse, *Bull. of the Museum of Far Eastern Antiquities*, No. 2, Stockholm, 1930, pp. 95–6, Pl. XII, 2 and, for ' Han sabres with ring pommels ', Pl. XV, 1, 6 and 7.

[42] *Herodotus*, Bk. VII, Chaps. 84 and 85 : Rawlinson's translation.

casually that the *machaira* was the sword-type best adapted for mounted men,[43] though the contemporary Iberian vase-paintings show this weapon being used by warriors on foot, never by those mounted.[44] As for the alleged influence of the horsemen of the South European steppe, Herodotus knew little of those living north of the Ister (Danube), and could mention only the Sigynnae, who drove small flat-nosed horses, not strong enough to carry men on their backs, in swiftly moving chariots.[45] It seems likely, therefore, that the early horse-riders who influenced the countries round the Aegean were Phrygians and Thracians. Cavalry, when it did exist, operated in a tip-and-run fashion against the enemy's cavalry or an exposed flank in preference to charging home, and down to the time of Alexander it seldom turned the scale against good infantry.[46]

From all this it seems unlikely that the combination of the horse and the sword had that immediately decisive effect that has been claimed for it. Cavalry evolved gradually and did not appear as a sudden cultural phenomenon enabling its exploiters to sweep all before them. The sword did not evolve as a logical response to the horseman's demand for a suitable weapon, but rather as the ideal close-quarters weapon for warriors of the Heroic tradition, whose standard, whether they lived up to it or not, was one of individual bravery and skill at arms.

---

[43] Xenophon, *Hipparchikos*, Chap. III, 3 and *Peri Hippikes*, Chap. XII, 12 and 13, trans. H. G. Dakyns. From Cunaxa in 401 to Coronea in 394, Xenophon saw plenty of active service, and when he wrote these books he had at his disposal the knowledge of all that constituted the cavalry tactics of his time.

[44] *The Iberians of Spain*, 1940, by Pierson Dixon, Pls. 10 and 11.

[45] *Herodotus*, Bk. V, Chap. 9. Rawlinson's trans.

[46] In ' The World of Hesiod ' Burn mentions the success of the Thessalian cavalry against the Spartans at Phalerum, 510 B.C. It seems likely however that the Spartans were taken by surprise, as a second expedition sent by them routed the Thessalians with no great difficulty (*Herodotus*, Bk. V, 63 and 64). As against this the Syracusan cavalry routed the left wing of the Athenian hoplites at Epipolae, 414 B.C., but by this time cavalry was becoming more efficient.

The Cult of Sul-Minerva at Bath

by J. H. Croon

THE process commonly called *Interpretatio Romana*, by which in ancient times a barbarian deity was identified with some Roman god or goddess, was admittedly of a locally very different nature. To quote an example: In Southern Gaul we find a whole series of Celtic deities connected with hot healing springs, Bormo, Grannus, Belenus, Nisincius, all in due course identified with Apollo. It seems obvious that the function of *healing* provided the link or association between the native deity and the Roman god. With this sole function their properties were not exhausted. But the fact that there are traces of fertility-aspects, that they were nearly always associated with a female consort or mother, etc., is a thing apart; there is no indication that these characteristics influenced the identification. Neither did the connection with hot springs, as far as I can see. We hear of an Apollo Thermios in Lesbos and at Thermon in Aetolia; in the Aegean island he was at any rate a patron of hot springs. Likewise, there were cults of Apollo near hot springs in Anatolia. But there are no indications whatever that these beliefs influenced the Roman Apollo.

There are, however, cases which are not as easy as that. The purpose of this article is to examine one of these, the cult of Sul-Minerva at Bath, the Roman Aquae Sulis. But the *Interpretatio Romano* is not the only point of interest in it. It may be worth while to inquire into the nature of the cult itself, which can be considered as one of the most interesting instances of romanized Celtic worship on British soil.

I have not chosen my first example at random. For the goddess of Bath, too, was a deity presiding over hot springs, indeed the only real thermal waters that are found in Britain[1]. As the geographical situation is of paramount importance, we shall look into it more closely. Bath is situated in the valley of the river Avon, and surrounded on nearly all sides by hills; it has three powerful hot springs, of which one, the 'King's Spring', has been used all through the ages for healing purposes, and now feeds a very modern and efficient bathing-establishment. When the Romans occupied Britain, they must have been very glad to find hot springs in these chilly regions, and made great use of them. On the other hand, they never founded a real city there; the necessary buildings for the visiting bathers and the public baths with temples, etc., was all they needed. Now the first thing to claim our attention is the fact that there has not been found any trace of a pre-Roman settlement in the valley near the springs. The evidence from which Dawkins inferred such a settlement, namely that the area included by the Roman wall is irregular, is too slight[2]. But this does not mean that the region around

[1] Principal literature: *The Victoria History of the County of Somerset* I (1906); herein: W. Boyd Dawkins, *Early Man* (p. 167 sqq.); F. J. Haverfield, *Romano-British Somerset* (p. 207 sqq.). This work supersedes most older books, but cf. C. E. Davis, *The Excav. of Roman Baths at Bath* (Bath 1887); id., *Guide to the Roman Baths of Bath* (24th ed. 1887); J. Earle, *Bath Ancient and Modern* (1864). After 1906 were published: *The Book of Bath*, written for the 99th annual meeting of the Br. Med. Assoc. (Bath 1925); A. J. Taylor, *The Roman Baths of Bath* (12th ed. Bath 1940), A. B. Cook, *Zeus* III (Cambridge 1940), 858 sqq. The spring at Buxton has a much lower temperature than Bath.

[2] Dawkins, op. cit., 204 (following Sir R. C. Hoare); Haverfield, op. cit., 221.

Bath was not inhabited before the Romans came. On the contrary, there is ample evidence of prehistoric settlements on the surrounding hills, of which the Celtic camps are of special interest for us. They belong to the prehistoric iron age, during which Somerset was conquered by the Belgae. There were older settlements, but these are irrelevant for our present purpose.

The Roman occupation, which lasted roughly from A.D. 50 to 400, as is clear from the coins, is attested by a few passages from ancient authors[3], from which the principal facts are clear already: 1. There are hot springs in the South of Britain. 2. The settlement there is known as Aquae Sulis. 3. The waters are protected by Minerva (= Sul), and in her temple was a perpetual fire, not burnt with wood, but apparently with coal[4]. The name Aquae Sulis and the information about the perpetual fire are the two points for which only the literary evidence is available. It should be noted that this fire is also mentioned in the older of the two legends about Bladud, recorded by Geoffrey of Monmouth. This legend cannot be simply dismissed as 'late', although it was not written down before the 12th century A.D. Unless Solinus was the source, which seems unlikely, the medieval author must have drawn upon popular tradition. The fact that it preserves a memory about the temple of Minerva suggests that the legend arose before the destruction of the shrine between A.D. 400 and 577.[5] For all other points besides these two we have much richer and much more trustworthy archaeological evidence. The Baths have been excavated by Mr Davis and his successors; they can be visited nowadays and form the most impressive monument of the Roman period in Britain.

The bathers, who came there to seek health or pleasure (sometimes both), worshipped the typical deities who were supposed to preside over thermal waters. Among the sculptures found in the neighbourhood are a relief showing a scene from the Asclepius-legend, and another showing Hercules. Both Asclepius and Hercules (as well as the Greek Heracles) were patrons of hot springs in the ancient world; so was Artemis, which might account for the dedication to Diana (*infra* note 7), if the reading is correct. But the cult with which we are most concerned at present is that of the main patroness, Sul[6]-Minerva. This cult is attested by Solinus, and by a series of inscriptions found during the excavations, erected by people who had come from various parts of Britain and from the Continent as far as Trier; these dedications to the goddess can now be seen in the Baths Museum[7]. Her temple was undoubtedly adjoining the Baths, but unfortunately a reconstruction of it is not as practicable as of the Thermae; all that remains are some pieces of sculpture, the most famous of which is the well-known

---

[3] *Ptolem.* II, 3, 13; *Itin. Ant.*, 468, 3; and especially Solinus, *Collect. rer. memorab.* 21 (p. 115, 1 Mommsen); cf. Haverfield, op. cit., 220 sq.; Hübner, *Pauly-Wissowa's RE* (henceforth quoted: *RE*) II, 298.

[4] There are coalfields on the surface near Bath, cf. Wallis in *The Book of Bath* (quoted *supra* note 1), 2; Haverfield, op. cit., 221.

[5] For these dates cf. Haverfield, op. cit. 225 n. 2 against Irvine, and R. A. L. Smith, *Bath* (London 1944), 19.

[6] Perhaps the correct nominative is *Sulis* (only the genitive and dative survive in the inscriptions, etc.), cf. Tolkien in Collingwood-Myres, *Roman Britain* 264, n. 1; Cook, op. cit. 858, n. 5. I have, however, adopted the more popular spelling, as it is better known.

[7] Haverfield, op. cit. 267 sqq.; Heichelheim, *RE* IV A, 723 sq.; *C.I.L.* VII, 39 sqq. Other dedications, to 'Dea Diana' (reading uncertain): Haverfield nr. 18; to the Genius Loci: nr. 19; to Mars Loucetius and Nemetona (Celtic deities): nr. 20; to the Suleviae (cf. *infra*, note 20): nr. 21.

pediment with the male bearded Gorgon-head, besides slight fragments of the rest of the building.

The question now arises, what was the character of this deity Sul-Minerva ? Without going into detail, we may just remark here that it is generally accepted[8] that the name consists of a Celtic and a Latin component ; that the Celtic part, Sul, is almost certainly akin to old Irish sūil = eye, and this again is akin to Latin sol[9] ; the connection in meaning between ' eye ' and ' sun ' is far from absurd. We have, therefore, to do with a *solar cult*. On the other hand it is clear from the dedications to her, that the visitors to the hot springs of Bath regarded her as a *healing deity*. But the fact that she shows herself by her name to be a romanized Celtic deity implies, of course, that she was worshipped in this place before the Romans arrived ; in this place, for she was apparently purely local : nowhere else do we find any traces of a Celtic deity called Sul[10].

To sum up the results gained thus far : When the Romans occupied Britain, they found hot springs at Bath, created a bathing-resort there, and promoted the worship of a local Celtic solar deity, named Sul, which they romanized and identified with Minerva. We shall presently inquire into the reasons of this identification. Before, we have to ask ourselves : where was this deity Sul worshipped before the Roman invasion ? Apparently not on the site of Bath itself, for there are no traces of pre-Roman habitation. The only possible answer is : on the surrounding hills, where the prehistoric settlements have been found. In this connection it is interesting to note that one of these hills is nowadays still called (Little) Solsbury. Haverfield thinks this name post-Roman, a reminiscence of the name Aquae Sulis ; Earle, however, thought that it was pre-Roman[11], corresponding to the position which this hill-fort held in prehistoric times. I am inclined to think that the older historian was right in this case. With its amazingly flat top, Solsbury is a place which commands the whole region, the best stronghold conceivable for any prehistoric population. The Roman settlement at Bath succeeded the prehistoric camps on Solsbury and other hills ; therefore it is much more likely that the succession of the names should be in the same order, rather than that the Roman name Aquae Sulis should have left a reminiscence in the name of the hill, long after the settlements in both places had disappeared. I am, of course, aware that the ending *-bury* is Teutonic, and therefore later, but this does not exclude the possibility that the other component is much older. Sorbiodunum-Searsburg (Old Sarum) is a close parallel, except that the migration to the valley site (Salisbury) was delayed till a much later date.

Having now established that the worship of pre-Roman Sul must have taken place on the downs around Bath, we have found an important clue. For we know that sun-worship was regularly connected with hills among the Celts[12]. It generally took the form of a fire-festival, during which a bonfire was lit on the most elevated spot in the neighbourhood. The festival was held on various regularly returning occasions, such as Midsummer (Beltane), and the beginning of the winter (Samhain). The rites were definitely intended to promote the fertility of the fields and probably also

---

[8] See, apart from the literature quoted already, Ihm, Roscher's *Myth. Lex.* IV, 1591 sq. ; Windisch, *Das kelt. Brittanien*, Abh. Kön. Sächs. Ges. Wissensch., Ph.-Hist. Kl. XXIX, 6 (Leipzig 1912), 96 sq.

[9] For authorities see Cook, op. cit. 858, n. 6 and 7.

[10] On the possible connection with the Suleviae see below.

[11] Haverfield, op. cit. 224 ; Earle, op. cit. 5 sq.

[12] Cf. J. A. McCulloch, Hastings' *Encycl.* V, 838 sqq. ; *The Religion of the ancient Celts* (Edinburgh, 1911), 265.

to strengthen the power of the sun ; animals were sacrificed in the fire, too. But it is even more remarkable that the worshippers did not stay on the hilltop where the fire was kindled, but rolled blazing wheels down into the valleys, and went down themselves to visit sacred wells, where they performed rites and ceremonies, presumably to ensure sufficient rainfall apart from the sunshine required. And on these occasions the wells and springs were supposed to be extraordinarily efficacious for healing purposes[13]. The springs then visited were held to be protected by spirits, mostly female ; the worshippers offered them coins and similar small gifts as a *quid pro quo*, a fee, or merely a sign of gratitude[14]. This again reminds us of Bath, where scores of coins were found in the culvert leading the hot water from the ' King's Spring ' to the Baths[15]. But sometimes the spring was inhabited by a malevolent spirit, as in the case of the ' cursing wells '[16] ; and this once more reminds us of Bath, for there, too, a leaden plate with a curse was found[17].

Herewith we have formed a firm basis for a hypothesis concerning the cult of Sul at Bath in pre-Roman times. It was probably in origin a bonfire-festival on one or several of the surrounding hills ; it was connected from the beginning with the hot springs, which were visited and worshipped by the inhabitants of the hills in the course of their festivals ; and from the beginning a healing power was ascribed to these holy springs, in this particular case most obviously, because the healing power is indeed very strong, and could hardly have escaped the notice of the prehistoric Celts.

There remains the question of the identification with Minerva. A very simple solution has been offered for this, just as in the case of the Gaulish ' Apollo '. One of the epithets of Minerva at Rome and elsewhere was *Medica*[18]. This cult of Minerva Medica may be a phenomenon arising through influence of the cult of Athena Hygieia on the Athenian Acropolis, but it may also be a purely Italic worship without any Greek background. However this may be, it has been assumed that the healing power of the Bath springs led to the identification of Sul with Minerva on the ground of the existence of Roman Minerva Medica[19]. Nevertheless, this involves some difficulties. This cult of a healing Minerva was obviously a somewhat eccentric phenomenon. Moreover, there is no evidence whatsoever that the goddess had, in Italy, any connection with hot healing springs. The process of equation might be more complex. Now among the inscriptions found at Bath, there is one dedicated by a certain Sulinus to the *Suleviae*[20]. Haverfield has pointed out that apparently the same man erected an altar at the neighbouring Cirencester, and dedicated this, too, to the Suleviae, which suggests that these

---

[13] Cf. McCulloch, op. cit. 266 sq.

[14] Cf. McCulloch, ibid., 181 sqq.

[15] Haverfield, op. cit., 249 sqq. This throwing of coins into a (hot) spring is, however, a universal custom ; cf. also the hot springs of Vicarello in Italy and elsewhere : Keune, *RE Suppl.* III, 136 ; Frazer, *Pausanias* II, 474 sqq.

[16] McCulloch, op. cit., 197 ; a curious example in modern times : H. V. Morton, *In Search of Wales* (London, 1932), 61 sq.

[17] A so-called ' tabula defixionis ' : Haverfield, op. cit., 249 sqq. ; cf. W. K. C. Guthrie, *The Greeks and their gods* (London, 1950), 273 sq.

[18] G. Wissowa, *Myth. Lex.* II, 2989 ; id., *Religion und Kultus der Römer*, 2nd ed., 254 sq. ; Altheim, *RE* XV, 1778.

[19] Cook, op. cit., 858 sq. ; Windisch, op. cit., 96 sq.

[20] Haverfield nr. 21 ; Ihm, *Myth. Lex.* IV, 1591 sqq. nr. 24 ; *C.I.L.*, VII, 37 : ' Sulevis Sulinus scultor Bruceti f. sacrum f.l.m. '

deities were his ' patron-saints ' and name-givers. Their name is apparently derived from the same root as that of Sul. And the fact that at a place called *Aquae Sulis* a man called *Sulinus* erects a dedication to the *Suleviae*, makes it highly probable that a connection between Sul and these deities exists. We have, therefore, to modify a statement made earlier on in this article. It remains true that outside Bath there is no known place of worship of a goddess called Sul, but the cult of the Suleviae, who appear to be akin to her, was certainly widespread. We find it in several places in Romano-Celtic territory, and on the altars of a Gaulish horse-regiment at Rome. Apparently they were conceived as guardian deities[21]. But there remains the difficulty that the Suleviae were a triad of goddesses, whereas Sul is single. This need not deter us ; for there are two inscriptions dedicated—if the reading, which is probable, but not wholly certain, is correct—to a single Sulevia[22]. The first of these has a claim to our special attention ; it runs as follows: ' Suliviae Idennicae Minervae Votum '. It was found near Nîmes, and the reading ' Suliviae ' is not absolutely certain ; this cannot be verified, because the stone is now unfortunately lost. But assuming it to be right, we find that the deity is here identified with *Minerva*. The reason for the equation is in this case obviously the function of guardian, protecting deity.

The frailty of our evidence should warn us against over-confidence, but it should not deter us from proposing a tentative solution to the problem set before us. There appears to be a chain of associations running from Roman Minerva as the guardian goddess via a single Sulevia to the Suleviae, with whom the patroness of the Bath springs was connected ; and another chain connecting Minerva Medica (whether influenced by Greek Athena Hygieia or not) with Sul as a deity presiding over hot healing springs. Each by itself may have been not strong enough for an identification, but the two associations cooperating may have caused the equation. On this showing, the function of Sul-Minerva as a sun-goddess stands quite apart. Either it was taken over wholesale from Celtic beliefs by the Romans, or it was, in the Roman cult, entirely suppressed.

---

[21] Ihm, op. cit., 1599 ; McCulloch, op. cit., 47.

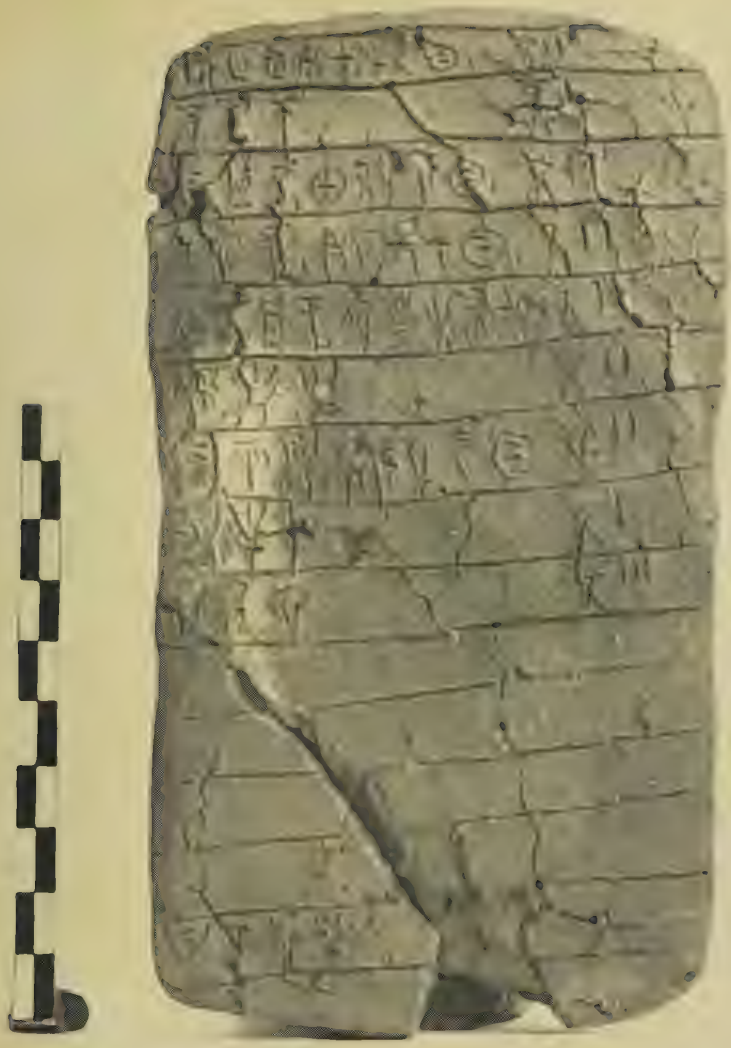
[22] Heichelheim, *RE* IV A, 725 nrs., 1–2 ; Ihm, op. cit., 1595 nrs., 29–30 ; *C.I.L.* XII, 2974 and XIII, 3664.

The Discovery of Inscribed Clay Tablets at Mycenae

by A. J. B. Wace

THAT a system of writing had been in use in the Mycenaean civilisation on the mainland of Greece had been known ever since the then existing evidence was collected by Tsountas and Manatt in *The Mycenaean Age*, published in 1897. Further evidence thereafter slowly accumulated. An inscribed stirrup jar was found at Orchomenos in 1903. In subsequent years others were discovered at Tiryns, Thebes, and Eleusis; but in the fourth volume of *The Palace of Minos*, published in 1935, Sir Arthur Evans could only say as regards the Greek mainland 'the absence of clay tablets should be rather set down to the accidents of discovery or to climatic causes'. Four years later in 1939 Professor Blegen found in the newly discovered Palace of Nestor at Pylos an archive room with several hundred inscribed clay tablets. This number he has further increased in his resumed excavations in 1952. In recording the discovery of the House of the Oil Merchant at Mycenae in 1950 I ventured to prophesy that if the excavation of that house could be completed it was quite likely that inscribed clay tablets would be found in its ruins. In the complete excavation of that house at Mycenae in the summer of 1952 the prophecy was fulfilled and thirty-eight clay tablets were found in two of its rooms. This is a discovery of the first importance; in conjunction with the tablets from Pylos it shows that we must expect to find inscribed clay tablets in any Mycenaean palace or large private house on the Greek mainland. There must have been tablets in the palace at Mycenae but that site was badly damaged by later building above it and subsequent denudation. At Tiryns too there must have been tablets, but that site like the Mycenae palace was excavated in the 1880's when archaeologists were not so alive to the possibilities of what might be found. A clay tablet in the earth or even just out of the earth is barely recognizable as such. Consequently the excavator himself must have a good eye for such things and train his workmen to observe and preserve even the most insignificant looking objects of clay. It is probably too late now to find tablets at Tiryns, but some presumably must still lurk in the ruins of the palace at Thebes if that site can ever be fully excavated. Orchomenos too is a likely site. The Acropolis of Athens with the palace of Erechtheus presumably once had tablets, but the classical buildings and the excavations of the last century there have destroyed any hope of their survival.

The Mycenae tablets, the first to be found there except for a stray surface fragment in 1950, are the first tablets to be found in a purely private house in the Aegean area. Thus at other sites where large private houses may be discovered there also may be tablets. The tablets from the House of the Oil Merchant at Mycenae show that merchants or rich landowners could read and write and keep accounts. The inscriptions on the large stirrup vases show that more people must have been able to read than we have hitherto believed, for otherwise what would have been the use of writing on the jars if the men who handled them could not read? The inscriptions on the jars may not necessarily refer to their contents, but perhaps to their capacity. An inscribed stirrup jar of this type was found at Mycenae in 1952 and will be published together with the



MYCENAE : INSCRIBED CLAY TABLET FROM THE HOUSE OF THE OIL MERCHANT

The fine clay of the surface is blistered by the fire which destroyed the house, but baked and preserved the tablets. This tablet is a list of names (?) with a 'commodity' sign and numerals

facing p. 84

tablets. Every large Mycenaean house seems to have had a storeroom which contained large stirrup jars. It is possible too that the big stirrup jars were made in standard sizes.

The tablets (PLATE) were found in the House of the Oil Merchant which lies a little distance to the south of the tholos tomb called the Tomb of Clytemnestra. The first found was in a room in the basement of the house apparently devoted to the storage of oil in large jars about 1.70 m. high. It was broken in three pieces which lay in a corner behind one of the large jars like the pieces of an old bill torn up and thrown in a corner. The other thirty-seven tablets were found in one corner of the next room scattered among debris fallen from the floor above. Many of them were broken, and they were in disorder. The tablets are made of somewhat coarse clay which was covered over, front, back, and sides, with fine clay on which the signs were incised. There were several sizes of ordinary writing tablets and in addition there were others which are shaped like dockets or labels. The larger tablets are accounts or lists and they are ruled with horizontal incised lines to keep the writing level. In two cases we have pieces from the top of large tablets which were deliberately broken off. It would seem that when the first line at the top of the tablet was written the first horizontal line was incised more deeply than usual and then the line written was snapped off. Similarly today a line could be written at the top of a sheet of paper and then the paper could be folded and the top line torn off. The writing was done while the tablets were still damp. They were never baked, but only dried, perhaps in the sun. Their preservation is due to the fact that the house in which they were was destroyed by a violent fire which baked the tablets accidentally, so to speak, and thus preserved them. The effect of the burning can be seen in several tablets where the coating of fine clay has blistered in the heat and detached itself from the core of coarse clay. The lists on the tablets are apparently the names of persons and against them are set numerals with a ' commodity ' sign. The numerical system was decimal and even fractions were recorded. The ' commodity ' sign before the numerals is not a word or syllable, but a sign which may be compared to the pound or the dollar sign. In one case in the Mycenae tablets it is a sign which Dr Bennett of Yale believes may represent a liquid which may well be oil. Another sign on some of the other tablets may perhaps be a sign for olives, the source of the oil. Some of the tablets have below the lists several blank lines and then one more line of writing with numerals. This apparently represents an addition and a total.

The tablets were kept in boxes or baskets which were tied with string and sealed with lumps of clay impressed with signets or syllabic signs. So the modern file or dossier stapled together had a Mycenaean counterpart.

The importance of the tablets as an indication of the extent of the literacy of the Mycenaean civilisation has already been emphasized. Another point now arises—what is the language of the tablets ? Some have assumed that since the script, the Mino-Mycenaean Linear B script as it is called by archaeologists, is also the script of the Knossos tablets, the language is not Greek or Indo-European, because the Cretans are thought not to have been Aryans. Now, however, since it is recognized that the Linear B script is the script of the Greek mainland, and since archaeologists now generally agree that the Greeks first entered Greece at the beginning of the Middle Bronze Age about 1900 B.C., some six hundred years before the date of the Pylos and Mycenae tablets, we might logically expect the language of the tablets to be Greek. Indeed why should the Mycenaeans, if they were Greeks, have written a non-Greek language ? Recently those who have most occupied themselves with the study and decipherment of the tablets, Dr Bennett and Mr Ventris, have made considerable progress and on the Pylos tablets the two signs for Pylos have been identified. Names and words are beginning to be

recognized and it is confidently believed that the decipherers are on the right track though they have probably a long way yet to travel.

The tablets of Knossos written in the Linear B script are similar to those of Pylos and Mycenae and differ from those of the rest of Crete. There is also evidence that the language of the Knossian and the mainland tablets is the same. The language of the mainland is probably Greek and thus the Knossian tablets should be Greek also. This need cause no surprise. For some time it has been obvious to many Aegean archaeologists that the Late Minoan II culture of Knossos was closer to the mainland than to the rest of Crete. Knossian wall paintings have more in common with those of the mainland than with those of Phaestus and Hagia Triada. At Knossos alone are found the Palace Style vases which are so characteristic of the mainland in Late Helladic II. The Ephyrean vases, the alabastra and the beehive tombs of the mainland were imitated at Knossos. The mainland palaces have throne rooms and so has Knossos. In short Knossos in Late Minoan II seems to have been in close contact with the mainland and perhaps even under its overlordship. Thus it is archaeologically quite possible that, when the Linear B tablets were written, Greeks had already reached Knossos. The archaeological facts exist and this is a reasonable explanation of them, although it may sound rank heresy to orthodox Minoan archaeologists.

One more point has arisen in connection with the Mycenae tablets. On the back of one is a lively and well-drawn sketch of a man. This is not a mere ' doodle ' or scribble because the anatomy of the figure is really good. A tablet from Knossos has on it what are called a gem-engraver's designs. We know that the Mycenaeans covered the walls of their palaces and big houses with gay and well-drawn frescoes. The artists of those frescoes, like modern artists, must presumably have made preliminary sketches for their works. If so they may well have used clay tablets. Thus this sketch of a man may be an artist's sketch for a figure in a fresco design. In Mespotamia, tablets of earlier date from Tello and elsewhere show sketches of human figures and animals. One Mesopotamian tablet of Akkadian date from Tell Asmar even shows the plan of a building. So it is not impossible that the Mycenaeans, who we know were skilled architects, may have sketched the plans of their buildings, the Treasury of Atreus for instance, on clay tablets. Even the House of the Oil Merchant itself from the features of its architecture shows that it was built not by rule of thumb, but by definite plans. Thus, when excavations at Mycenae and other sites of the period are resumed, if more tablets can be found there is much that might be found that would not surprise us. Historical records or official letters like the Amarna letters would be a great find, and if their language were to be Greek as we might expect they would illuminate the early history of the Greek language as well as the history of heroic Greece. We might find plans of the citadel of Mycenae with its palace or sketches for the frescoes which adorned the palace. An artist's sketch book on clay tablets would be a rich find. Lastly, since most of the tablets we have so far are lists, perhaps some tablets might give a muster roll of ships anticipating the Homeric Catalogue and Agamemnon's battle order. An archaeologist, however, must not give too free a rein to his imagination !

Adventure and Flinders Petrie*

by Sir Mortimer Wheeler

I HAVE it in mind that our Royal Patron, in the course of her Christmas broadcast to her peoples, used the following words :

> ' Above all, we must keep alive that courageous spirit of adventure that is the finest quality of youth : and by youth I do not just mean those who are young in years ; I mean, too, all those who are young in heart, no matter how old they may be. That spirit still flourishes in this old country and in all the younger countries of our Commonwealth '.

Those words have recurred to me more than once since I first heard them, and I take them as the text for the short address which recent custom demands of me this afternoon.

The ' spirit of adventure '. I suppose that the phrase contains nearly all that makes life worth while ; but to define it is another matter. We in this room today represent an era which has had its fill of rudimentary adventure, or has at least had ready opportunity for hazards beyond the dreams of Henty. In saying that, I am consciously contrasting our lot with that of our parents or grandparents, living as they did in an epoch of certainty, in an environment of good solid mahogany, with the picture always before them of a little sedate Old Lady in whose house there was no room for the word ' defeat '. Adventure there was in plenty in that bygone world, but it was sharply discrete from the security of the average household outside the services. By the adventurous of spirit it had for the most part to be sought, and sought deliberately, whether in two dimensions or in three. And sought it was. In those far-off days, for example, I can recall the sturdy figure of my father, living the most humdrum of lives and eking it out with a vicarious adventuring that comes back freshly to my memory. As he strode regularly to or from his office, his daily existence was packed with boyish adventure. Tartarin, all Tarascon, had nothing to offer him. He had, in vivid imagination, forded the Kabul river under fire, until he could describe the splash of every bullet ; he had never actually been east of Nuremberg, but he had shot man-eating tigers whose breath lay hot upon my boyish ears. All men who had striven beyond the frontiers were his heroes. His worshipped familiars ranged in fact from Robertson of Chitral to a commissionaire who had marched to Kandahar with Roberts. To a later generation such episodes have become a commonplace, but I have sometimes doubted whether a familiar actuality could ever have held a candle to my father's world of fancy.

The spirit of adventure. What in fact is it ? Andrew Lang, as the title of one of his volumes of essays reminds us, found his ' Adventures Among Books '. For more material adventures he, unlike the lame and frustrate Sir Walter, had no zest. A

---

* Presidential address to the Royal Archaeological Institute, 13 May 1953, here printed as delivered.

significantly remembered poem from his early boyhood was this song from the ' Bride of Lammermoor ' :

' Look not thou on beauty's charming,
Sit thou still when kings are arming,
Taste not when the wine-cup glistens,
Speak not when the people listens,
Stop thine ear against the singer,
From the red gold keep thy finger,
Vacant heart, and hand, and eye,
Easy live and quiet die '.

' It takes all sorts to make a world ', is Lang's comment ; ' some are soldiers from the cradle, some merchants, some orators ; nothing but a love of books was the gift given to me by the fairies '. I never met Andrew Lang, but my elders were his friends, and I do know this of him : he had above all things a passion for Homer and for trout-fishing. Hector and Ajax and the brown trout between them filled his shallow but gracious cup to overflowing with adventure of the polite kind that matched his perfect Victorian gentility.

At the other end of the scale we have that preposterous cult of adventure which today reaches the revolting extremity of raucous adolescent vulgarity in an eminent country whose name I shall not breathe to you. The other day I was reading a chronicle of alleged adventuring from the pen of a professional traveller from that anonymous land. He was describing a journey from Peshawar through the Khyber Pass to Kabul, a journey made daily as a matter of routine by something like a hundred greengrocers' vans. This hero first of all encloses himself in a spine-pad and a pith-helmet and then proceeds breathlessly upon his dare-devil progress through (I am using his own words) ' The Pass of Death to the City of Brooding Suspicion '. That is no more than an average example of its kind. In the country from which this voyager came, ' adventure ' has become almost the synonym of ' demonstrative imposture '.

And yet somewhere between ' Easy live and quiet die ' on the one hand and ' The Pass of Death ' on the other lies a *real* world of adventure which is very precious, and also very necessary to the fulfilment of us Britons. Until the last twenty years we could in fact take it in our stride. Every year some hundreds of our young men—and young women—were lured or sent out into remote places where local scales of value differed sharply from our own and shook us a little—perhaps not enough—from our congenital complacency. The worst feature of a life of routine is, of course, that it smears us into uniformity ; it regimentalizes us. But a young man who, still in his twenties, was solely responsible for (let us say) the head-hunters of a vast Asian forest-tract, had something that is lacking on the nine-fifteen. However harassed in the process by fleas and fever, such vital spark as lay within him was liable to be evoked by the challenge. He had, as an ordinary average Englishman, an opportunity of self-fulfilment such as has, through the ages, peculiarly fitted and augmented our accumulative tradition. I am not now discussing the merits of that tradition ; I am merely considering, from a national standpoint, personal fulfilment and the opportunities for fulfilment.

By now, ladies and gentlemen, you will be impatiently asking what all this has to do with Archaeology. I venture to think that it has a great deal to do with Archaeology. Today the world, politically, is closing rapidly upon us Britons. I am not lamenting the fact, but merely stating it. Lament is at the best useless and at the worst harmful ; the philosopher long ago told us that we cannot hope to descend twice into the same stream,

and we merely waste our substance in lamentation for the passing of an epoch. But outside the political world there is a very great deal that we can do about this situation, and that is worth the doing. As archaeologists, we are unsurpassed in the world. I have no doubt about that; I say those words after reflection and without fear of considered contradiction (at any rate from a Briton). Looking back over the past century or more, we may truthfully affirm that, with one or two exceptions, all the major archaeological discoveries have been substantially British. To our independent effort the cuneiform script surrendered, even though we admit an able foreign competitor. *We* tracked the minotaur to his Cretan layer. To the tale of the world's civilizations *we* added the Indus Valley. Elsewhere, again and again *we* have been *inter primos*, notably in the land of the Tigris and the Euphrates, and again in that of the Hittites. Troy and Mycenae, it is true, yielded to Schliemann, and Paul Émile Botta was a groping pioneer in Mesopotamia, but our own victories remain outstanding. I need not here stay to recall to you a tithe of them.

But our work in these and parallel fields is not done. It is indeed scarcely begun. I know that as long ago as 1923 John Buchan wrote a book called *The Last Secrets*, heralding the end of discovery in a shrinking world. ' The shrinkage of the world goes on so fast ', he laments, ' our horizon grows so painfully clear, that the old untiring wonder which cast its glamour over the ways of our predecessors is vanishing from the lives of their descendants '. We need not pay undue attention to Cassandra, even in the respectable and responsible guise of John Buchan, Lord Tweedsmuir. In this very month of May wherein I am now speaking to you, the unscaled height of Mount Everest still lies before us. And in our own province, Archaeology, the challenge remains as insistent as ever it was.

Reflect for a moment. Reflect upon the great expanses of Asia which have not yet been even touched by skilled exploration. Think of Africa, still Dark archaeologically from its innermost recesses to the Indian and Atlantic coastlines. How much do we know of Arabia ? I speak only of the Old World and of that portion of it which lies this side of the Iron Curtain. But when in the fullness of time the Iron Curtain shall have become as much a matter of history as the Great Wall of China, what problems await us in the linking up of the Old World and the New ? What happened in the lands about the Bering Sea, and to the west of them ? What possibilities await us !

From time to time I have sought, with limited power and opportunity, to divert some of our younger archaeologists from their back-yards to these vast horizons. At the risk of inflicting boredom or irritation, I repeat that challenge. Here lies a great opportunity for continuing that high tradition of adventure which is our greatest pride. If the political field is closing upon us, the intellectual field still awaits us. Let us train our young people at home under the informed short-range criticism which makes British archaeological training perhaps the most scrupulous and scholarly in the world; but then let us enable them with that training behind them to exploit these immense world-problems with the same skill which they now lavish on a burial-mound in Wales or a Roman market-town in England. And for their part, let them, these young people, seize the opportunity, with all that it implies, not only for the discipline which they serve but also for the manhood and womanhood which cannot fail to be enhanced by the whole adventurous process. Let them go to the ends of the earth, and let them go in numbers, with the thought that ten years' carefully selective exploration and excavation in the wide open spaces can scarcely fail to tell us more of human achievement than can a hundred years of digging in an English back-garden.

How did Walt Whitman put it in another and larger context ? —

> ' Come Muse migrate from Greece and Ionia,
> Cross out please those immensely overpaid accounts,
> That matter of Troy and Achilles' wrath, and Aeneas',
> Odysseus' wanderings,
> Placard " Removed " and " To Let " on the rocks of your
> snowy Parnassus,
> Repeat at Jerusalem, place the notice high on Jaffa's
> gate and on Mount Moriah,
> The same on the walls of your German, French and
> Spanish castles, and Italian collections,
> For know a better, fresher, busier sphere, a wide,
> untried domain awaits, demands you '.

I spoke just now, in passing, of Africa. I take this opportunity of interpolating a word about an African Conference which is being held at the London School of Oriental and African Studies in July. I have no great faith in the efficacy of conferences, but it is an explicit purpose of this particular one to get something done in the matter of African archaeology, and I am not unhopeful that at least a mouse may emerge. Where so much awaits attention, any positive advance will be welcome, and we may wish this African Conference a more constructive session than one sometimes encounters in such cases. It is, for example, high time that our East African colonies or trusts possessed an organized archaeological department such as was long ago set up in India, Palestine and Cyprus. We are, it must be confessed, astonishingly casual and negligent in such matters.

Well then, in so far as general principle goes I have said enough. I have once again pleaded for a wider and more adventurous archaeological outlook for, and from, a greater number of our young people. And I turn now to the example of one who from his earliest years kept these wide horizons before him and strove strenuously and adventurously towards them.

Next month will be celebrated the centenary of the birth of Sir Flinders Petrie. At University College, London, and in the London Institute of Archaeology, special exhibitions will commemorate his life's work in Egypt and Palestine, but even so will touch only a part of his almost univeral interests. I do not propose here to attempt a reasoned survey of his life and work, but I knew him, if only intermittently, for many years, and it is appropriate to my present theme to say a word or two about him.

Last summer at our Hereford meeting I was recalling that the year of the previous Hereford meeting of the Royal Archaeological Institution, 1877, had been marked by the exhibition, to the Institute, of a collection of thirty-six plans of British earthworks, etc., surveyed during the previous two years on scales varying from $\frac{1}{2}$ to $\frac{1}{1000}$ by an entirely unknown but very confident young man, Mr W. M. Flinders Petrie. It is of some interest to recall that the ' plans were classified as (1st) Defensive, proved by position and form : (2nd) Industrial, subdivided as domestic, pit dwellings, etc. ; Pastoral, cattle enclosures, with ditch inside bank, and in low positions; and Agricultural, slight divisions of land into regular portions : (3rd) Sepulchral, mounds, etc. : and (4th) Religious, including those for which no other purpose can be assigned '. Mr Petrie, in the course of his remarks, observed that this series of plans was begun ' in order to examine the accuracy and geometric skill of the earthworkers, as no collection of accurate and detailed plans has yet been produced for such a study. In these plans every point fixed and bearing taken in the survey was shown, and a distinction made between

triangulated and measured points, and between absolute and magnetic bearings . . .' One of the principal results, he affirmed, was to reveal standard prehistoric units of measurement. He brings in North Americans, Assyrians and Phoenicians; his mind already leaps continents and tails off into fantasy. But a restless quest for precision and an overmastering ingenuity are at the same time present.

Petrie was, of course, a genius in the full sense of that abused term. Often we of younger generations blame him for sinning against our own standards, forgetful that the immense stretch of his working life extended long after his period of intellectual receptivity had passed. We might as well blame Xerxes for not deploying torpedo-boats at Salamis, or Napoleon for attacking the British squares with cavalry instead of machine-guns. Petrie fought with the weapons that he knew or himself invented, and in his youth fought better than any of his contemporaries in the East. Indeed his superiority over his contemporaries was such that, encouraged by an instinctive self-sufficiency, he thought and worked excessively alone, aided only by pupils and subordinates of unequal value. The result was a sometimes disconcerting lack of proportion in thought and action. He would dart headlong up the road, without necessarily glancing at the sign-post. The most notorious example of that was his lasting adherence to an obsolete and untenable Egyptian chronology; but the foible showed itself in many ways. I cannot forget my first encounter with him. As a very young graduate I was, I remember, for a short time the private secretary of Sir Gregory Foster, then Provost of University College, and I was sent by the Provost to see Petrie about some trivial matter of College administration. The great man's door opened, I was swept into a seat, and, before I could utter, Petrie was volubly instructing me to go to Pompeii before the end of the month and to prepare careful drawings of all the Roman pottery preserved there and at Naples. A torrent of detailed instructions followed for several minutes, and it was not until a scarcely perceptible pause for breath occurred that I was able to persuade him that I was not the Smith or Jones whose visit he was expecting. Quite unruffled and without transition he passed to the business I had come about.

Years later, in 1925 I think, he spent a holiday with me in Wales, at Brecon, where I was digging a Roman fort. He occupied his time by surveying stone circles and other monuments in the surrounding countryside, and I remember how on the first day I asked him what instruments he proposed to take with him. A look of ineffable cunning came into his eyes as he produced a single slender bamboo pea-stick and—a visiting card. The pea-stick, he said, planted in the ground gave him the line, whilst the visiting card, sighted carefully along two of its sides, gave him a right-angle. At night after dinner, by the light of an oil-lamp, he would get out a notebook containing lists of measurements resulting from his day's work in the field, and, with the help of a logarithm-table, would ultimately reduce them to a schematic diagram.

I tell this story as a curious, rather human sidelight on the paradoxical character of a man whose microscopically precise measurements of the pyramids of Gizeh are almost legendary. By his incredible ingenuity complex problems were liable to be rendered excessively simple and surmountable, simple problems might be tangled into inextricable complexities. On another plane, I think that my most inspiring association with him was at the time when the proposal for the foundation of what is now the London University Institute of Archaeology was first under serious consideration. I had drafted the scheme for this Institute in 1926, and the first public reference to it was made at a meeting of the Royal Society of Arts in the following year. Early progress towards the realization of the scheme was slow, but two or three years later I heard that Petrie was trying to persuade the University of London to make adequate provision for archaeological

collections in its new buildings, then in the planning stage. Here obviously was a case for cooperation. I took my scheme to Petrie, and he in turn brought out a characteristically detailed plan for floorage and wall-space, every figure worked out to a decimal point. Unfortunately, the University, with other heavy problems in its mind, would not listen to him. Nevertheless it was Petrie's name, and the bait of his homeless Palestinian collection, that attracted the anonymous endowment which eventually, in the early 'thirties, turned the scheme from two dimensions into three. The Petrie Palestinian collection at the Institute of Archaeology is still indeed the biggest and best of its kind in the country. Petrie himself went to live in Palestine about this period and dropped out of the whole business. But I am glad now to tell, for the first time, the important and indeed decisive part which his name and reputation played in an enterprise that was ultimately brought by many hands to a fruitful conclusion.

The scene changes to 1942, the year of Petrie's death. Early in that year it so happened that I was in Egypt, engaged upon fieldwork of a non-archaeological kind, when I heard somehow that Petrie was dying. I took 24 hours' leave and drove to Jerusalem. Whilst crossing Sinai I was involved, I remember, in a distressful and fatal accident, and so reached Jerusalem a trifle shaken up, to find a sudden relief in the peaceful atmosphere of the little hospital where Petrie in his 89th year lay placidly upon his death-bed. The picture of him is stamped upon my mind. He was swathed in white sheets, and a sort of turban of white linen was about his head. His grey beard and superb profile gave him the aspect of a Biblical patriarch. His mind was running even faster than was its wont, as though it had a great distance still to cover before the approaching end. In the course of ten minutes it ranged without pause over a wide variety of matters, from the copper implements of Mesopotamia to the lethal incidence of the malarial mosquito at Gaza. I left the room quietly, my little brain stretched by the immensity and impetus of a mind for which there were no trivialities in life and no place of respite.

A career of unremitting drive such as Petrie's can scarcely have been *consciously* adventurous; he was too self-sufficient to experience with any great acuteness those analytic reactions to environment which are, to my mind, a part of the ideal adventurer. T. E. Lawrence was an adventurer in a sense that Petrie never could have been. Yet from the day when in his twenties he lay, miserably seasick, on the grating of the ship that took him to Egypt for the first time, Petrie's life was in fact one long adventure, one long process of search and discovery in many places and under many circumstances. For let us not be mistaken: *discovery* is an essential part of adventure; that is why you can't buy adventure at Messrs. Thomas Cook's.

And now, since we are back on my primary theme, Adventure, let me end upon it. In doing so, I recall a charming little episode which occurred not long before the War. I was sitting in my office one morning when the attendant brought into me an unknown name, followed shortly afterwards by its owner. He was a bespectacled youth with what I would call a 'confidently shy' manner, who sat on the edge of his chair and announced that he was a lecturer in medieval history at a red-brick university. He then came straight to the point. 'I want', he said, 'to lead an expedition to Chinese Turkestan. Please will you tell me how?' I trust that no emotion showed itself on my face as I replied: 'Just three small points before you go: (1) What are you going to do when you get there? (2) What funds have you got for the purpose? (3) What staff are you taking with you?' He immediately replied: 'First, I am going to see what archaeology there is in Chinese Turkestan—no one seems to know. Secondly, I am going to ask for funds from (mentioning a wealthy commercial family with no known interest in Chinese Turkestan).

Thirdly, my staff is outside ; may I bring it in ?' He opened the door and, in response to his beckoning, two very shy young men drifted upon the scene. 'This', he said, 'is X., who will be my Geographer. And this is Y., who will be my Linguist'. I turned to Y. and asked 'What languages do you know ?' 'Well, sir', he replied, '*actually* I don't know any, but I've got till Easter'.

By this time, the whole unreal interview may have lasted five minutes. My own brain was secretly in a whirl, but I managed to churn out some face-saving advice and to give certain necessary introductions. The expedition started punctually ; went to India ; found that its sponsors in Chinese Turkestan were by that time, owing to political changes, in jail ; switched its plans to the North-west Frontier Province and Afghanistan ; and came back with a heap of systematic information which was promptly and quite skilfully published. Unfortunately, the enterprising ringleader has since been swallowed by that omnivorous monster UNESCO, and his adventuring—which still indeed continues—has been diverted to other spheres. He is a loss to archaeology, for his heart and his head are both in the right place, and he might well have stepped into the vacant shoes of Sir Aurel Stein. I can but hope that one morning soon my door may open again to some young Englishman—or Scot or Welshman, for that matter—with the light of the sunrise in his eye.

Important New Books and Articles

The inclusion of a book in this list does not preclude its subsequent review

THE LOCAL HISTORIAN AND HIS THEME, by H. P. R. FINBERG. Published by the University College of Leicester (Occasional Papers No. 1, 1952). [An introductory lecture by the first Reader in English Local History there].

THE BOURNEMOUTH AREA IN NEOLITHIC AND EARLY BRONZE AGE TIMES, by J. BERNARD CALKIN. *Proc. Dorset N.H. and Arch. Soc.*, Vol. 73 (1951), 32–70. [An admirable study, fully illustrated by coloured distribution-maps].

THE BIRTH OF CIVILIZATION, by V. G. CHILDE. *Past and Present*, No. 2, Nov. 1952, 1–10. [A riposte to Prof. Henri Frankfort's criticisms in his book, reviewed in ANTIQUITY XXVI, 156–8].

HELLENIC CITIES, by R. E. WYCHERLEY. *The Town Planning Review* (Univ. of Liverpool), Vol. XXII, No. 2, July 1951, 103–21.

THE ROMAN SITE AT CATSGORE, by C. A. RALEGH RADFORD. *Proc. Som. Arch. and N.H. Soc.*, Vol. XCVI, 1951, 41–77. [A Roman building—'a small and poor farmhouse'—of exceptional interest because it was first built early (about A.D. 70) and, we might add, because it has been excavated so well].

THE NEAR EAST AND THE FOUNDATIONS FOR CIVILIZATION, by ROBERT J. BRAIDWOOD. Condon Lectures; Oregon State System of Higher Education, Eugene, Oregon, 1952. [To be reviewed later].

BANDKERAMISCHE STUDIEN, by A. STIEREN and E. SANGMEISTER. Bericht der Röm.-Germ.-Komm., 1943–50 (1951), 61–109. [Adduces new evidence to justify the thesis that the earliest cultivators in Central Europe (the Danubians) lived, not in irregular pit-dwellings, but in very long houses; and draws highly plausible inferences as to the organization, population and duration of these settlements, V.G.C.].

BEFAESTET VIKINGEHAVN I. NORMANDIET, by THORKILD RAMSKOV. *Fra National-museets Arbejdmark* 1952, 41–3. (Gyldendalske Boghandel: Nordisk Forlag: Copenhagen). [Discusses the excavation of Le Hague Dicke, a linear earthwork across the Cherbourg peninsula].

OTSCHEIKI PO ISTORII PLEMJON, ETC. [Observations on the history of the tribes (plemjon) of the European part of the U.S.S.R. in the neolithic period] by A. J. BRJUSOW, Moscow, 1952: 264 pages, 68 illus. [The only synthesis of the neolithic period in this huge area. Many good half-tones, line-drawings, distribution-maps. An essential book for European prehistorians, and one that calls out to be translated].

THE GEOLOGICAL SETTING OF FOUR PREHISTORIC SITES IN IRAQ, by H. E. WRIGHT, JR. (Univ. of Minnesota). *B.A.S.O.R.* No. 128, Dec. 1952, 11–24. [A valuable field-survey of the pleistocene succession in the Jarmo district and the place therein of archaeological phases. Jarmo itself, 4750 B.C., is assigned to the dry period of the postglacial climatic optimum].

THE PALACE OF KING NESTOR, by CARL W. BLEGEN. *Archaeology*, Vol. 5, No. 3 (Autumn, 1952), 130–35. [A short descriptive account in our American contemporary of a famous Homeric site that has yielded many inscribed tablets].

Notes and News

RACIAL ORIGINS IN THE FAR EAST

The following extract is taken from a review by Erik K. Reed of an article on ' The Problem of the early peopling of the Americas as viewed from Asia '.* It is reprinted here (by permission) from the *American Journal of Archaeology*, Vol. 56, p. 235, as it seemed to be of general interest. Ed.

Birdsell's hypothesis runs essentially as follows :—

(1). In late Pleistocene times, beginning probably in the last interglacial, Northern Asia was occupied by an eastern branch of the ' White ' or ' Caucasoid ' race, spreading from the Mediterranean region through unglaciated portions of Siberia and China to the Pacific, north of the Himalayan Mountain zone and of the Hungshui River basin in South China. This postulated basic group of North Asian Europoids, which he labels the ' Amurian ' race or type, survives in the Ainu of northern Japan and, mixed with other elements, among Australians and Papuans, and among American Indians. It is represented in the archaeological record by the Late Palaeolithic fossils of the Upper Cave at Choukoutien in North China, and by specimens from Java (' Wadjak man ') and Australia (the Keilor skull).

(2). As recently outlined by C. S. Coon, the highly specialised Mongoloid type arose in late glacial times in a restricted ice-free area in northern Asia, its evolution speeded by rigorous selection in a dry cold environment. Probably the Mongoloids arose from an isolated population of this same North Asian or ' Amurian ' (Ainoid) race. With the retreat of the encircling mountain glaciation, the newly envolved Mongoloids expanded rapidly during early Recent times, over much of eastern Asia and, combined with unmodified ' Amurians ', into America.

Two other distinct racial groups, the Negrito and the ' Veddoid ' or ' Carpentarian ', important and early in Australasia, never came north of the Himalayas and of the Hungshui drainage in Southern China, and do not come into the picture at all for the Americas and Northern Asia ; no Negroid element whatever is involved, nor any Mediterranean type.

(3). Inasmuch as hybrids are not always intermediate in type, and crosses of Mongoloid with other types generally produce predominantly Mongoloid offspring, the Ainoid (' Amurian ') element among the immigrants to North America was probably much larger than its occurrence among modern Indians would suggest.

(4). In the New World, various types differentiated locally, through natural selection under varying environmental stresses, from the original Ainoid-Mongoloid dihybrid group.

For the most part, Birdsell is undoubtedly right, in essentials at least, up as far as Bering Strait and in large part after he has crossed into North America. But he tacitly assumes that there was only one single migration. If instead we accept the usual idea of a series of related migrations, or continuous drift of small groups, over a long period of time, Birdsell's two basic types work in even better with the scanty available evidence—the first and very early arrivals distinctly ' Amurian ' (Europoid, ' Caucasoid ', Ainoid) like the Browns Valley specimen from Minnesota, the later groups more and more Mongoloid.

* Published in ' Papers on the Physical Anthropology of the American Indian ', ed. by William S. Laughlin, N.Y., the Viking Fund, 1951.

A HELLENISTIC PAINTING FOUND IN BULGARIA* (PLATES I and II)

Towards the end of the war a chance find brought to light a painted tomb under a tumulus at Kazanlak in Bulgaria.

The tomb is of the Mycenaean type with dromos and tholos (diameter m. 2.65, height m. 3.20), which is still found in Thrace in the full classical age. In addition to relief in the usual style in white, black and red, this tomb has figure scenes.

The dromos is covered with a false vault and has two panels facing each other; these have scenes of cavalry fighting, probably between Thracians and Celts. The costume and arms are typical—round and elliptical shields, a curved sword, helmets with a Phrygian cap, strange flat hats. It is uncertain whether the panels are intended to represent battle scenes or funeral games. In this connection it should be remembered that the native dynasty of the Odrisi was still ruling in the interior of Thrace in the Hellenistic age and that a Celtic kingdom had been established on the Haemus. This kingdom was gradually reduced by the Thracians until its final disappearance at the end of the 3rd century. The Roman conquest of the country only took place in 129 B.C. after their intervention in Macedonia and Syria. Its annexation and constitution as a province followed many troubled episodes, such as the revolt of Burebista.

Classical writers, in particular Herodotus and Xenophon, bear witness to Thracian funeral rites involving human victims and horse races, the animals being later offered as sacrifices; this is borne out by modern discoveries. In the present case only the teeth of horses were found alongside the tomb. Within were the remains of a human skeleton and a large number of small gold disks.

The principal figure scene is painted on the curved roof of the tholos above the red wall and a frieze with bucrania and rosettes (PLATE I). A procession of slaves approaches the deceased couple, who are sitting at a feast. The slaves bear a pyxis, oinochoe and patera, a small coffer and a napkin. They are accompanied by two trumpeters. Beyond there are a magnificent quadriga and two saddled horses, led by other slaves (PLATE II). A tall female figure, holding a dish of pomegranates, a fruit symbolical of the next world, stands near the deceased. The dead woman is seated on a richly ornamented throne; her arm is supported on that of the man, who sits at a rectangular table richly spread for the banquet.

Since there is no space to describe and comment in detail on the scene, its iconography and style, reference must be made to the full publication (*Arti figurative*, I, pp. 105 sqq, 1945). Here it will be sufficient to recall the popularity of the Hellenic motive of the funeral feast in Thrace, where it is found on a long series of funerary reliefs. But so far as is known no other example illustrates the subject on so grand a scale or with so many figures. Although the type of tomb with a painted chamber under a tumulus is common and long-lived in Thrace and Macedonia, the surviving paintings are relatively few in number. The scenes are normally confined to architectural motives, with occasional representations of horsemen, painted sarcophagi and ornamental features; the rich series of subjects found in the numerous tombs of South Russia (Kertch) is lacking. This tomb is exceptional with its great figure compositions, including a lively upper frieze with racing chariots between columns, conceived as supports for the central stone of the false vault. There is also a wide range of stylised architectural features—dentils, cyma, ovolo and scrolls—all carried out in rich colours.

The colours used are red, blue, yellow, white, brown and purple; the outlines are firm and unbroken. The figures have elongated proportions.

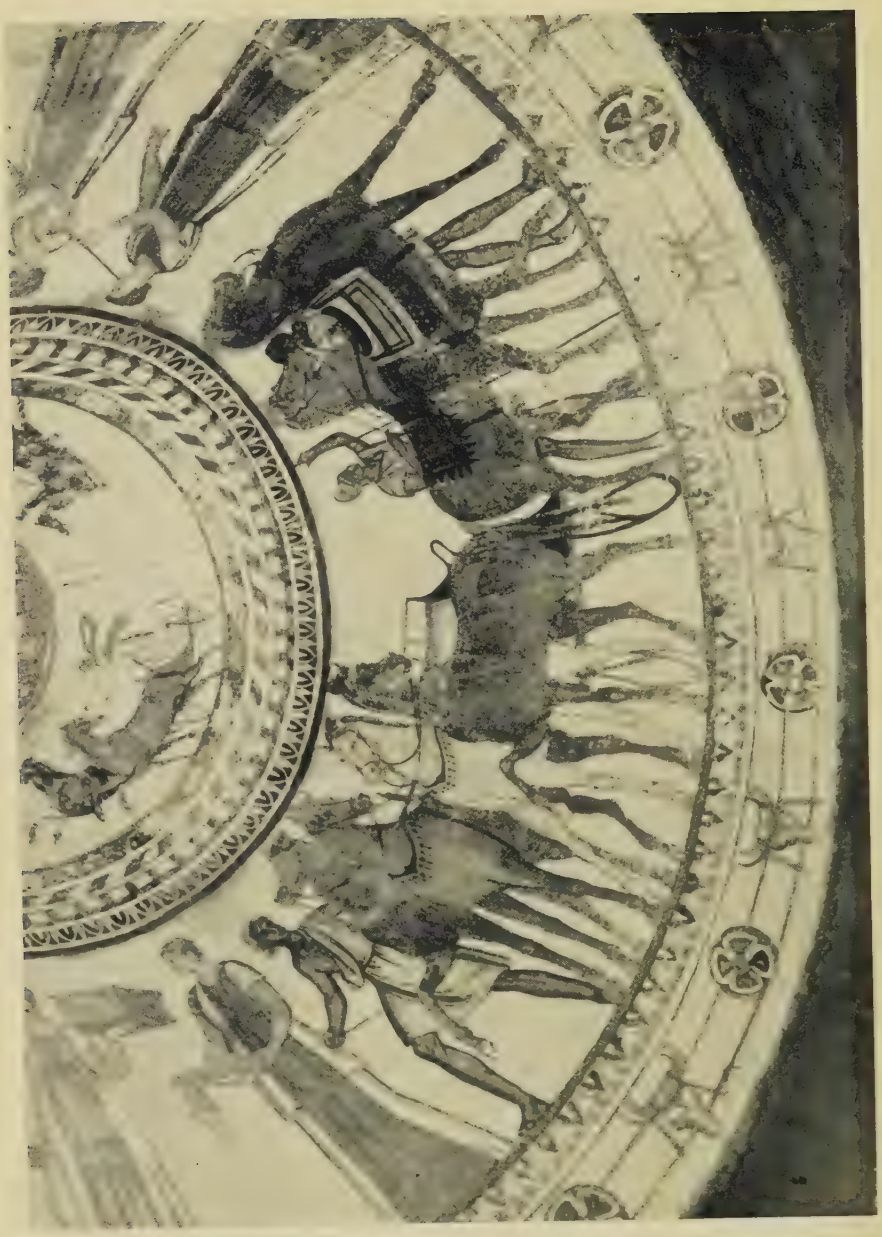
---

* We wish to thank Mr Ralegh Radford for kindly translating this. Ed.

PLATE I

KAZANLAK, BULGARIA: HELLENISTIC TOMB-PAINTING

facing p. 96



KAZANLAK, BULGARIA: HELLENISTIC TOMB PAINTING

a. THE WALLS OF COSA AND A SQUARE TOWER, BUILT SOON AFTER 273 B.C.

b. THE CAPITOLIUM OF COSA, BUILT OF SMALL, BRICK-LIKE BLOCKS OF CALCAREOUS SANDSTONE

TWO VIEWS, IN DIFFERENT LIGHTING, OF THE INSCRIBED STONE FROM ENKOMI, CYPRUS

EARLY NEOLITHIC HEADS FROM JERICHO

Costume, subject and composition are Greek. Greek vases and the paintings in Etruscan and Oscan tombs provide parallels for many of the motives ; some of the figures may be compared with the painted stelae of Pagasai. A few parallels may also be noted with the small number of surviving Hellenistic paintings from Asia and Africa.

These paintings in fresco and tempera are of exceptional importance owing to their fine preservation ; only those in the dromos are slightly damaged. They indicate Hellenic penetration into the heart of Thrace, where Mycenaean architecture, abandoned in Greece since the close of the archaic period, continued to flourish. The date cannot be far removed from the 3rd century B.C. This tomb represents a fully developed Greek style of painting commemorating the funeral rites of some important Thracian chieftain, who was buried in the lavish Thrace-Scythian fashion, which has enriched Bulgaria with sumptuous tumulus graves and rich furnishings of precious metalwork. A. FROVA.

ARCHAEOLOGY IN ISRAEL

The process by which the State of Israel has come into being explains the all pervading interest both in the geography of the country, in its present and historical aspect, and in its ruins. Archaeology is essentially history embodied in present-day reality. The magic which antiquities never fail to evoke in sensitive minds is caused by the rare blend of that which is with that which has been. The hand that fashioned this glass goblet, the thumb that marked that jar handle, have turned to dust long ago ; but their fragile handiwork has outlasted them ; it is now embodying before our very eyes an abstract historical idea in its concrete physical form. In a parallel way, so long as the abstract, age-long yearning of the Jewish nation in the Diaspora for its lost home was nourished on the Prayer-book and the Bible, it found its historiopoeic expression in written history and poetry ; but when at last it turned from words to deeds, the transition to reality on the plane of life was accompanied by a parallel transition from history to archaeology. Naturally, and indeed almost inevitably, the historic idea in search of a body found its essential symbol in contact with the Promised Land itself, the evocation of its landscape, its sites and ways ; and with it in the material remains of its past. The fact that so many men of eminence in Israel are either amateur or professional archaeologists is not an accident ; it is the result of the impact of a definite historical situation on receptive minds. The link between past Jewish statehood and its Israeli renewal cannot be ignored. While an all-out effort is being made to keep the political and economic life of the state on the material plane as modern as possible, its historical background was brought to the consciousness of every citizen and of every Jew abroad by a revival of an ancient symbolism. The arms of the State of Israel bear the seven-branched Temple candlestick as represented on the Arch of Titus at Rome ; the coins and stamps repeat the old coin symbols of the Hasmoneans and the Wars against Rome. Thus it becomes apparent that what seemed a revolution was in reality a restoration, a return to a legitimate *status quo*, a bridging of a gap eighteen centuries wide.

If archaeology in Israel had been of value solely as the vehicle of a national revival, it would indeed have been of interest to the sociologist and the historian, but it could hardly lay claim to the interest of the civilised world. However, by a unique combination of geographical and historical factors, the history and archaeology of Israel have a significance far exceeding that of almost any area comparable in size. Besides, apart from its intrinsic interest, it is one cultural unit in a larger whole, the significance of which we must now evaluate.

The archaeology of the Near and Middle East—Classical, Oriental and Egyptian—has been always of more than purely professional interest. Although Prof. Toynbee

has so far listed twenty-one civilisations in the past, including those dead and petrified, all are not of equal relevancy to the type of Western civilisation now in the ascendant. This type of civilisation stems mainly from the Graeco-Roman and the Oriental ; and in particular from the Jewish contribution to the latter as embodied in the Bible and that part of the later Jewish traditions—especially ethical—which has been adapted and diffused by Christianity. The ancient history of the twin cradles of the foremost Oriental civilisations, the valleys of the Nile and of the Tigris-Euphrates, as well as the land bridge connecting them, have had a peculiar attraction to Western scholars ; and as the written sources of this history (always apart from the unique documentation of the Bible) are practically non-existent, it was archaeology which supplied most of our knowledge of these fascinating subjects. Indeed the excavators' spade has turned up not only the buildings and monuments of art, but even most of the original written sources by which we judge these civilisations. Again in these same lands a world-wide attempt has been made at religious syncretism and cultural amalgamation in the Hellenistic centuries following the conquests of Alexander the Great ; and here also blind persecution evoked the type of religious and political particularism which is still an active force in these and other parts of the world. Both the centripetal and centrifugal tendencies of the Hellenistic and Roman periods have left their archaeological and artistic marks on the present ; and their understanding is invaluable in assessing the parallel problems of this day on a world scale. And, somewhat surprisingly, the same area between Egypt, Mesopotamia and Asia Minor, has played a very important part in prehistoric research.

As regards the earliest of the periods known to man, the Stone Age research has concentrated on the last part of that immense stretch of time, hundreds of thousands of years. This last period, called the Neolithic age, represents the emergence of Man as a peasant ; the older hoe-gardening methods are replaced by agriculture proper and the semi-nomadic squatters settle in villages. The work of Dr M. Stekelis, of the Hebrew University, on behalf of the Israel Department of Antiquities in the Yarmuk valley (a tributary of the Jordan), has produced striking evidence of the cultural evolution of the period. One of the results of the Neolithic revolution of food-producing methods was the accumulation of an annual surplus and the consequent possibility for the existence of classes not directly engaged in food raising, but receiving their subsistence for supplying the community with hitherto unobtainable skills and services. Another consequence of man's chaining himself to the soil was his dependence on the vagaries of the climate and the varying fertility of the land ; the next step was to create these favourable conditions by magic ; and hence we have the evidence of fertility rites found in the Yarmukian village of Shaar-ha-Golan ; carvings indicating male and female forms roughly indicated on flat oval pebbles. Once the first steps in propitiatory magic was taken, the next phase was the rise of a priestly caste grouped round sanctuaries. With the arrival of metal casting, agriculture by irrigation and the accumulation of great reserves of cereals in the hands of the rulers, society becomes further organized ; city-states with priest-kings replace the scattered villages. The great granary of Beth Yerah at the outlet of the Sea of Galilee, with its thousands of stones and nine big silos on a massive stone platform, is only one of the indications of the impressive amount of labour which could be mobilised (probably by corvee) for the public works of the period.

The big excavations of the twenties and thirties of this century have been mostly devoted to the sites in the inland area, which had Biblical connections : Megiddo, Beth Shean, Samaria and Lachish. Owing to the well-known hazardous nature of archaeological work, they produced, in the main, evidence for the material prosperity and religious development of the Canaanite Age preceding the Israelite conquest. It was therefore of

special significance that the first large-scale excavation undertaken after the proclamation of the State of Israel was undertaken at the mouth of the river Yarkon, north of Tel-Aviv, in the coastal plain. Prof. B. Maisler excavated at Tell Qasila a series of cities, beginning in the Philistine period. Already the earliest strata yielded evidence of the commercial importance of the site, which was fortified as a trading post at the mouth of a river and a secure anchorage for the small craft of the period. Shortly before the time of David, the city was taken over by the Phoenician traders, who had come down the coast establishing their landing places ; its destruction by the King of Israel was but temporary. The monarchs of Israel had perforce to develop the trade of their kingdom if they wished to maintain its power and prevent a return to the cultural level of their nomad ancestors ; as a result, we find at Qasila a series of administrative buildings and store-houses of the period of the Israelite monarchy, which apparently served for the storage of oil and wine by the royal administration (products levied by the king from the peasants inland) and the import of gold as payment for these. Both these kinds of commercial transaction are confirmed by ostraca with incised Hebrew inscription, found on the site. Of course the whole of the trading settlement was protected by a massive stone casemate wall. On the whole these excavations gave a valuable picture of the too often neglected economic and administrative aspect of the period of the Israelite monarchy, a period of violent stress and strain between the material culture of the Oriental world and the spiritual message of the Prophets.

A rapid stride through the next five centuries brings us to a parallel period of violent spiritual strife ; for the impact of the Hellenistic world on the Jewish nation was even more terrific than that of the culturally lower Orient. The conflict led to the independence of the Second Jewish Commonwealth after the exhausting but ultimately victorious wars of the Maccabees, with their earlier glories, later reverses and final triumph. Even after the Maccabean state had succumbed in a welter of civil war and foreign intervention, its leaven continued to work the Jewish masses. One of the by-products of that great spiritual crisis (the essential significance of which was the eternal contrast of the social and political ideal of righteousness with the hideous political reality), was the development of many curious sects, formed by persons whose tender consciences could not reconcile themselves to the life that surrounded them. These bodies withdrew therefore from the defilements of contemporary society into the desert, and maintained themselves there, in spite of all persecution from home and abroad, till the end of the period. A memorable find made in the last days of the British Mandate in a cave on the shores of the Dead Sea has brought to light the cached library of one such sect. The parchments, sealed with pitch and kept in jars, were in part acquired by Prof. E. L. Sukenik of the Hebrew University, and thus preserved for Israel. The contents of the cache revealed on the one hand the existence of the oldest manuscripts of some Biblical books (in particular two versions of the Prophet Isaiah, one differing from and the other conforming to the standard text), and also a quantity of unknown books (imitation of the Psalms, an apocalyptic work on the ' Wars of the Sons of Light with the Sons of Darkness ', a commentary on the Prophet Habakkuk, and the regulations of the sect, which lived apart as a unit based on economic community of goods). This remarkable discovery has given an immense stimulus in two directions : the study of the Biblical text and the study of the history of the later days of the Second Temple. If we remember the place the Bible occupies in human thought of all periods, and the significance of the historical cross-roads which humanity reached at the turn of our era (from which point stem the two great spiritual forces still active in the world, Rabbinical Judaism and Pauline Christianity), then we shall be able to understand the full significance of the great find part of which is now being intensively studied in Israel.

In the days of Turkish rule and in the first period of the Mandate (say, down to 1939) Jewish archaeologists in Palestine left general archaeology almost entirely to Gentile scholars ; they themselves had an irresistible urge to delve into the past of their own people and handle with fond admiration the ruins of their forefathers. This tendency led to their interest in the synagogues, walls and tombs of the period before and after the destruction of the Temple.

However, as the years progressed and the underground swell which preceded the great crisis of Jewish statehood in Palestine became stronger and stronger, this tendency changed. One of the conditions for the successful establishment of the State of Israel was its impartiality ; equality, regardless of race and creed, could and should not be limited to the present ; it must as well extend to the past. Hence with the establishment of its own service of antiquities, the State of Israel has taken the line of entire scientific detachment as regards the archaeological remains in its area. Moslem monuments, Crusader and Mamluk fortresses, Byzantine churches, Roman temples and burials are excavated whenever necessary, and as necessary for a full scientific record.

One example of this will suffice : at Caesarea the accidental work of a bulldozer disclosed a colossal porphyry statue. Excavations undertaken on the spot revealed a most instructive state of affairs : Roman statues of red porphyry and white marble, were, together with their plinths and seats, taken by the Byzantines and set up as an ornamental patchwork of a public building of the 5th or 6th century. The excavation was a valuable lesson in the artistic conservatism of the period and its preference for the work of the remote and pagan past.

In spite of all economic and cultural difficulties assailing the new State, an energetic attempt is being made by public and private institutions and scholars to keep abreast of the rapid wave of development now traversing the country, and to preserve to the utmost limit possible the treasures of the immense historic past which have been left within the territorial limits of the State of Israel.

M. Avi-Yonah.

THE CURSE AND THE RING

Silvianus lost a ring. Precisely where and how he lost it is unrecorded ; but it is clear from the inscription which he subsequently scratched on a piece of lead, and deposited in the Temple of Nodens at Lydney, that he had certain suspicions. The inscription found during the excavations of 1805 and re-examined by Collingwood in 1930[1], reads as follows :—

> Devo Nodenti. Silvianus anilum perdedit ; demediam partem donavit Nodenti. Inter quibus nomen Seniciani, nollis petmittas sanitatem donec perfera(t) usque templum [No]dentis.
>
> ' To the god Nodens. Silvianus has lost a ring ; he hereby gives half of it (i.e. half of its value) to Nodens. Among those who are called Senicianus, do not allow health until he brings it to the temple of Nodens '.

This ' Lydney Curse ' is an interesting inversion of the function of a healing divinity for such, we may assume from other evidence, was one of the attributes of Nodens. A

[1] W. H. Bathurst and C. W. King, *Roman Antiquities at Lydney Park, Gloucestershire*, 1879, p. 45 and Pl. xx, 3. R. E. M. and T. V. Wheeler, *Excavation of the Prehistoric, Roman and Post-Roman Site in Lydney Park, Gloucestershire*, 1932, p. 100 and fig. 28, 1 = *C.I.L.* VII, 140.

pilgrim visiting the shrine of a Romano-Celtic god often left ' ex-voto ' offerings to assure his own health ; but Silvianus sought a more negative aid, and wanted Nodens to withhold his health-giving powers from Senicianus and his family[2].

The significance of this curse, and the motives underlying it become considerably clearer if we associate it with the gold ring found at Silchester by a ploughman in 1786[3]. This ring had on its seal a crudely designed human head and the name VENVS, whilst around the outer edge of its hoop were cut the letters of a Christian acclamation SENICIANE VIVAS IN DE[O].

No one has ever questioned the authenticity of either the curse or the ring, but there has been a surprising reluctance to admit any connection between the two objects. Haverfield dismissed it as ' a mere coincidence which dates show to have no significance '. In his view, the palaeography of the curse showed it to have been cut in the 1st or 2nd century A.D., whereas the ring was clearly of the 4th century.

The palaeographical dating of graffiti is always hazardous, and the results of Wheeler's excavations at Lydney in 1928–9[4] make it difficult to accept so early a date for the curse. The great Temple complex on that site only came into existence after A.D. 350, and the previous occupation was connected with iron-mining rather than with a religious cult. Even though Nodens was probably associated with this Gloucestershire hill-top long before 350, there is no evidence that his shrine became a place of pilgrimage before the Temple and Guest-House were erected.

Since the curse and the ring evidently both belong to the same period—the second half of the 4th century A.D., we are entitled to reconsider how far Haverfield's ' mere coincidence ' must be accepted. The name Senicianus is certainly not rare, but equally it is not particularly common. Apart from the imported stamps of a Gaulish potter, an inscription from Manchester[5] provides the only other British instance of this name ; whilst the index to Volume XIII of the *Corpus* shows only nine Seniciani recorded epigraphically in the Three Gauls.

But the ' coincidence ' extends far beyond the mere occurrence of the same name on two sites. The ring which Silvianus lost was evidently of some value, since a half-share was considered an appropriate reward for the services of Nodens : it was therefore presumably of gold. If Senicianus of Silchester had ordered a ring to his own specifications, he would hardly have chosen a seal bearing the name of Venus.

Must we continue to deny any connection between the curse and the ring ? Is a ' mere coincidence ' any more probable than a happy accident which has yielded up (to sceptical posterity) not only the record of a theft, but the actual object stolen ?

There can, of course, be no certainty in this matter ; but there is, at least, a strong probability that the whole episode of the stolen ring reflects the growing antagonism between pagans and Christians in 4th-century Britain. The Christians were certainly a small minority, but they had—after the reign of Constantine—the support of the imperial government ; and by the time of Theodosius they were in a position of complete superiority under the new laws which proscribed the pagan cults. There is no evidence

---

[2] The closest Romano-British parallel is provided by the ' Bath Curse ' (*V.C.H. Somerset*, pp. 281–3, No. 44). Haverfield, in describing the latter, drew attention to a similar curse from Arezzo (*C.I.L.* XI, 1823).

[3] *V.C.H. Hampshire*, I, 283 = *C.I.L.* VII, 1305.

[4] R. E. M. and T. V. Wheeler, op. cit.

[5] *C.I.L.* VII, 211, where the form Senecianus is used.

that these laws were ever effectively applied in Britain[6], where the bulk of the population remained pagan until the Roman evacuation of 410 ; but a pagan robbed of his ring by a member of the triumphant minority could do no more than appeal to the aid of his own gods. One may be allowed to hope that the health of Senicianus did deteriorate—even though it is quite clear that Silvianus never got his ring back, and Nodens never received his half-share. R. G. GOODCHILD.

EXCAVATIONS AT COSA IN ETRURIA, 1948–1952 (PLATE III)

The classical school of the American Academy in Rome has been carrying out excavations at the Roman town of Cosa (the modern Ansedonia, near Orbetello on the Tuscan coast) since 1948. The campaigns have been limited to the months of May and June each year and have been under the direction of Professor F. E. Brown, the excavation staff being made up of students of the Academy with the occasional participation of Italian scholars. The results of the first season, devoted to the exploration and mapping of the site, have been published in the *Memoirs of the American Academy in Rome* (volume XX, 1951, ' Cosa I : History and Topography '), but the results of subsequent campaigns have not yet appeared in print.

Between 1948 and 1950 excavations were devoted to the arx of the city. The extraordinarily well preserved fortifications of polygonal limestone masonry (PLATE III, A) were examined, and measurements and soundings in the fill and construction levels were made. These proved that the walls are not, as they had been supposed, Etruscan, but the walls of the Latin colony of 273 B.C. Indeed, on the hill of Cosa, virtually no trace of the Etruscans has come to light, and as excavations have been carried to bedrock at a number of points we are now persuaded that the Etruscan town of Cosa, the colony or port of Vulci, must be sought elsewhere, perhaps on the peninsula of Orbetello or at the mouth of the Chiarone river.

The capitolium, considerable remains of which already stood above ground, was completely uncovered (PLATE III, B). It is certainly the best preserved republican capitolium yet known. Coins, pottery, and terracotta revetments date its foundation securely in the years after Cosa received its second draft of colonists in 199 B.C. The pronaos had six columns, two in antis and four in front ; the platform was trimmed with heavy, rounded mouldings at base and crown ; the cellae show traces of decoration in Pompeian First Style. There were stairs the whole width of the front and a spacious forecourt with an arched entrance and the altar in the middle. This temple is particularly interesting for an exceptionally complete sequence of terracotta revetments in which can be distinguished six periods of repair or re-decoration. In the early period the aspect was rather severe; in the later period it was almost flamboyant in the invention shown in the design of the plaques. And the originally empty pediment was later filled with terracotta sculptures. The torso of the capitoline Jupiter and torsi of two statues of emperors which belonged in this sacred precinct were found built into medieval walls.

In 1950 another, smaller temple on the arx was excavated. It had a single, almost square cella and possibly only a single row of four columns in the pronaos. It is certainly older than the capitolium, as the remains of an ancient tufa altar under a later pavement and the almost sterile fill suggest, and may date back to the first years of the colony. In the 14th century this had been converted to use as kitchens by the freebooters who then occupied the hill and fortified it. This castle was destroyed by the Sienese in 1329 ;

[6] Lydney and other temple-sites have produced coin-lists extending down to the very end of the Roman occupation, and even into the early dark ages.

the swiftness and completeness of this destruction left us an amazing find of medieval household material in excellent excavation conditions.

Another temple, on the highest part of the arx, was located, but it has not yet been possible to excavate this, since the building used as an excavation house stands over it. This may well prove to be the most interesting of all, for the material which fell from it when it burned about the time of Sulla, found in a trench along the platform of the capitolium, is far the finest temple decoration of the excavations.

In 1951 operations were transferred from the arx to the forum, and the basilica, the largest and best preserved public building on the forum, was excavated. Like the basilicas of the Forum Romanum it opened to the forum on a long side, where there were steps the whole length of the building. At the middle of the back there was added a small, shallow tribune, either an architectural afterthought or an addition of a later period; its floor was not raised above that of the rest of the building. The central nave stood two storeys; the aisles around it were a single storey with a gallery above, the porch along the front a single storey. The evidence dates the original building in the middle of the 2nd century B.C., a generation after the capitolium. Thus the basilica of Cosa is the oldest known building of this sort. In later years, probably the time of Augustus, this basilica was converted into a theatre. A scaenae frons was built along the line of the columns of the farther aisle, and blocks of seats in masonry and rigging for a curtain were installed in the nave. This came to an end in the time of Claudius, when the northwest wall of the building collapsed, and it appears never to have been repaired again, though in the medieval period a small chapel and dwellings and stables were built in its ruins.

In 1952 the north corner of the forum was explored, together with the entrance to the forum from the piazza at the crossing of the main streets from the northeast and northwest gates. From these excavations it appears that there was a monumental re-handling and ordering of the forum at the time of the second draft of colonists (199 B.C.). The main (northwest) entrance was ornamented with a triple arch, like a city gate (the proportion of side to central arch 1 : 4), and on the northwest side of the forum was built a Doric colonnade with a row of shops behind it. Earlier the forum had been simply an open square with buildings at random around it. At the north corner was found a building of complex history, of which the original nucleus was an atrium publicum of the early colony, the first building of this sort to come to light. It consisted originally of an atrium with alae but no tablinum surrounded by offices of the public magistrates, one of these opening on the atrium, the others on the forum or on the street to the arch. In later times this was converted first (*c.* 199 B.C.) into a private house and then (about the time of Augustus) into an inn to accommodate the spectators at the basilica-theatre next door. In its collapse, the northwest wall of the basilica buried this inn and its contents under debris and preserved for the excavators a rare treasure of household goods of the time of Claudius.

In 1953 it is proposed to continue excavations in the forum. Probably these will be explorations of the two small temples of polygonal masonry southeast of the basilica.

L. RICHARDSON, JR.

AN INSCRIBED TABLET FROM ENKOMI, CYPRUS (PLATE IV)

One of the most important results of the excavations at Enkomi, which I conducted for the Department of Antiquities in Cyprus, during the summer of 1952, was the discovery of a fragmentary tablet of baked clay (PLATE III) inscribed on both sides[1]. The

[1] These excavations form part of a joint expedition (French Mission and Department of Antiquities, Cyprus). The French Mission is under the direction of M. Cl. F. A. Schaeffer. The Director of Antiquities, Mr A. H. S. Megaw, kindly gave me every support.

part of the site where this document was found is that which adjoins on the inside the north sector of the City Wall. Here in 1950, during the clearing of the Wall we noticed architectural remains lying immediately on the inside of the Wall. It was therefore decided to open up this area and examine the connection structural or chronological between these remains and the City Wall.

At the end of the 1952 season we were able to ascertain that there existed a large complex of buildings dating back to the beginning of the Late Cypriot (Bronze Age) II, i.e. round 1400 B.C. and even, in parts, to the Late Cypriot I. This complex possessed fortification walls extending East and West and at about 1230 B.C. it was reorganized and new floors were made. Soon after, i.e., during the last quarter of the thirteenth century there occurred a severe destruction at a time when Mycenaean III, C : 1 pottery was in use. The whole of the superstructure of the complex was pulled down and the lower parts of the walls, which were built of rough stones, were buried under the debris and sundried mudbricks.

Following this catastrophe an attempt at reconstruction was made at least in some parts of the complex ; but soon after a new destruction accompanied by severe fires supervened. This second destruction was also marked by the presence of Mycenaean III, C : 1 pottery. Immediately after this destruction the fortifications were reorganized and a continuous City Wall incorporating the existing fortification walls, was built. At the same time the area previously occupied by the complex described above, was levelled up and abandoned. Indeed the later stages of the town, i.e. advanced twelfth century and early eleventh, noticed by us in the ' Temple ' area[2] are not represented. It was in the layer which was formed by the levelling up of this area at the beginning of the twelfth century that the tablet was discovered, near the top step of a staircase which must have given access to an upper storey. It is evident that the tablet was not in its original position and that it got mixed up with soil and debris including fragments of Mycenaean III, C : 1 pottery at the time of the levelling up of the area. It is naturally impossible to know where its original home was but it is possible that it is not far away ; future campaigns may throw some light on this problem. The tablet, perhaps, together with others of similar kind may have lain on one of the floors of the complex at the time of the destruction and during the upheaval it was displaced, wandered then for some time and finally got mixed up with debris. This is confirmed by the condition of the tablet which shows some wear.

The importance of this fragmentary tablet lies in the fact that this is the first time that a document of this kind has been found in the soil of Cyprus. So far our knowledge of a script and in particular of the Cypro-Minoan or Cypro-Mycenaean script in the Late Cypriot period, come from short inscriptions mostly engraved on clay vases, clay balls, bronze objects, cylinder seals, and the like,[3] but no document of any length has ever been reported. The discovery of this fragmentary tablet shows first that this type of document in common use in Hither Asia[4] was also known in Cyprus for longer texts and secondly that archives of the kind found in the East, in Crete and on the Greek mainland, may exist

---

[2] *Illustrated London News*, Aug. 27, 1949, pp. 316–7. The pottery associated with the later stages is first the Late Cypriot III decorated ware and secondly that of the Mycenaean granary style.

[3] J. F. Daniel, ' Prolegomena to the Cypro-Minoan script ', in *A.J.A.*, vol. 45, pp. 249 ff. A. Evans, *Scripta Minoa*, II (edited by Sir John L. Myres), p. 73. Cl. Schaeffer, *Enkomi-Alasia*, pp. 391 ff.

[4] The type of the tablet is nearer the Asiatic than the Cretan or Mycenaean ones. The dimensions of the fragment described here are : w. 9·5 cm., ht. 5 cm., th. 3 cm.

at Enkomi. It would be premature to enlarge on the importance and the significance of this discovery but Sir John L. Myres has kindly accepted to add the following note on the script used on the tablet. PORPHYRIOS DIKAIOS.

By the kindness of Dr Dikaios, and of Dr C. J. Gadd of the British Museum, I have been able to examine a plaster cast of the inscribed tablet from Enkomi. It is a fragment of a large rectangular tablet, retaining a part of the left upright edge, about ten closely written lines, and about 20 letters in the longest lines. The writing is foursquare, closely packed, and originally very clear and regular. Unfortunately it has been so much sand-blasted that only very few signs can be recognized in some oblique lights, but not certainly. The *ductus* of the strokes resembles not the cuneiform stabbing, but the Minoan drawing or cutting ; and the few signs which are at all clear seem to be Cypro-Minoan. In some lights the text looks like a tabular account, or inventory, with Minoan numerals.

Perhaps with clever lighting and much patience, it may be possible to recognize the script more certainly. It is in any event an important addition to our knowledge, and an encouragement to further excavations of this complicated and much-devastated site, the general character of which is already apparent from Dr Schaeffer's *Enkomi-Alasia*, 1952. JOHN L. MYRES.

BALKS : A CORRECTION

Mr Michael Nightingale, in his most interesting paper ' Ploughing and Field Shape ' in ANTIQUITY, XXVII, 25, after mentioning Dr Orwin's belief that strip cultivation has no connection with lynchets, stated that I, having challenged this opinion, carried my views ' to the opposite extreme by assuming that balks might be associated anywhere with Open Fields '.

I assumed nothing of the kind. On the contrary I was at pains to state that while I had evidence (now considerably increased) that the balk was widely and, perhaps always, used as a boundary between ' lawns ' on lighter and drier soils of the limestone and chalk country, I readily agreed with Dr Orwin that, in the heavy clay areas of the Midlands, deep furrows formed the boundaries of the ridged strips.

When one writer quotes another it it preferable that the quotation should be correct.

Mr Nightingale who notes that the lawns at Portland are disappearing rapidly, will be relieved to hear that an application from myself has resulted in two typical areas of lawn, balk and lynchet there being now scheduled under the Ancient Monuments Acts. C. D. DREW.

NEOLITHIC PORTRAIT-SKULLS FROM JERICHO (PLATE V)

At the very end of the second season's excavation by the British School of Archaeology in Jerusalem and the American School of Oriental Research in Jerusalem, a find was made of very great interest in the history of human portraiture. Part of a skull had been visible in the wall of an excavated area for some weeks, but was not removed until the section had been drawn. The drawing was completed only the day before the party was due to leave Jericho. When the skull was cleared, it was found to have features moulded in plaster. Its removal revealed two more deeper into the section ; when these were removed three more appeared behind, and finally a seventh. All had the moulded features, though they varied in state of preservation.

The site lies in the centre of the western brow of the Tell, in the south side of Square D.1, shown in the plan, ANTIQUITY, Sept. 1952, fig. 1. The Neolithic town wall, of which a further 5 metres was uncovered this year, would be about 4 metres beyond the W. end

of the section (FIG. 1). The stratification places the deposit of skulls well down in the pre-pottery Neolithic levels. The relation of the levels to the town wall in this area is not yet completely worked out, but it is probable that the layer in which they were found was considerably subsequent to the destruction of the wall.

The skulls as found were clearly discarded, for they lay in a tumbled heap in a fill of earth. The fill formed a packing between two contemporary walls, of the type characteristic of the earliest phase of the pre-pottery Neolithic stage so far fully examined, though there are indications that there are earlier phases beneath. This phase is characterised by walls constructed of cigar-shaped bricks with thumb-impressions (ANTIQUITY, Sept. 1952, pl. IVb), and floors and walls covered with continuous, highly burnished plaster. A further plastered floor sealed one of the parallel walls, with the

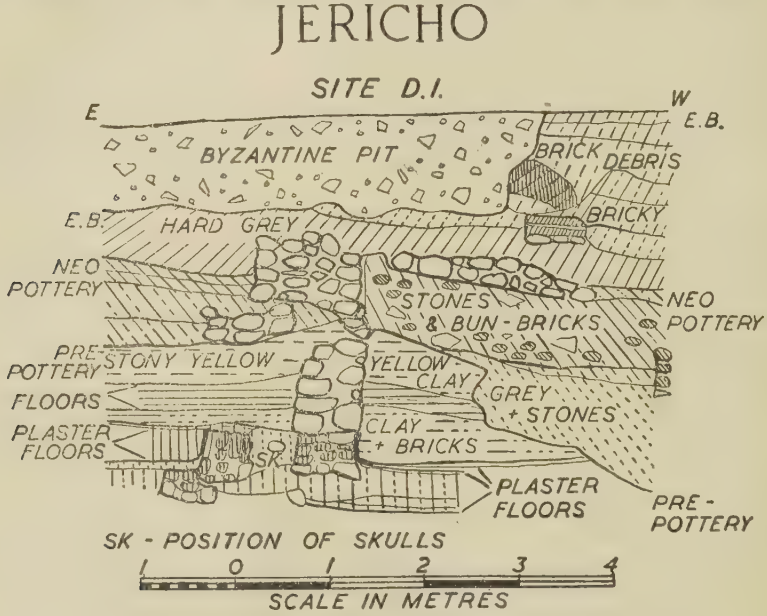


FIG. 1. SECTION SHOWING STRATIGRAPHICAL POSITION OF THE JERICHO HEADS

westernmost continuing in use. The original period of the skulls, before they were discarded, is therefore succeeded by at least two structures of this plastered floor stage.

This stage is succeeded by another pre-pottery stage, in which there are well-built walls of stone, with beaten earth floors. These levels are denuded on a steep slope running down the hill to the west, with deep pits cutting into it in places, suggesting that there is a subsequent period of cessation of occupation of the area, in which considerable quarrying, probably for brick-earth, took place. The levelling over of this denudation and quarrying is with soil rich in typical Jericho Neolithic pottery, decorated and coarse. Above this fill, the structures are of bun-shaped bricks and stones; there is an appreciable sequence of such structures. These levels have a well-defined surface, suggesting a vegetation level, above which the Early Bronze Age levels are reached.

Plenty of charcoal has been recovered from the first of these Neolithic phases, to which the skulls belong, but it has not yet been submitted to Carbon-14 tests. The

absolute date, therefore cannot yet be established, but the summary given above will show that their horizon is well back in the Neolithic phases of Jericho.

The skulls have so far only received a superficial examination, so no detailed anthropological report can be given. The crown of the skull is left uncovered. The rest of the skull is completely encased in plaster, including the base. The interior is filled solidly with earth or clay, which was certainly inserted intentionally, as there were no apertures through which it could subsequently have penetrated. The soft tissues of the head must therefore have decayed before the moulding operations took place. Only in one case, that illustrated on PLATE V is the lower jaw certainly present, in the rest the line of the jaw being moulded in plaster. The features, eyebrow ridges, eyelids, ears, nose and mouth, are all delicately modelled and the eyes inserted, against an internal backing of plaster, with shells. In one case the shells are cowries, in the others flat shells in two leaves, separated by vertical slits to represent the pupils. The whole effect is extraordinarily life-like.

The full significance of the finds is still to be worked out. Some form of ancestor-worship would appear to be suggested. The relationship of these portrait heads to that discovered by Professor Garstang, which is completely modelled in plaster, flat and disk-like, with some points of resemblance but many of dissimilarity, requires further study. But what is quite clear is that here at Neolithic Jericho we have portrait heads which are the earliest known in the direct line of development of naturalistic portraiture, a line continued by the great achievements of Sumerian, Egyptian and Greek art.

KATHLEEN M. KENYON.

Correspondence

Dear Dr Crawford,

In view of the great authority and wide publicity commanded by statements in ANTIQUITY it seems advisable to amend a statement about Kili Ghul Mohammad, Baluchistan, in your very interesting note on the earliest Neolithic phase (No. 105, p. 33). The ' overlying deposit ' at this site did not contain Quetta ware, nor would Piggott now regard this latter as ' the earliest yet identified in Western India '.

In fact, the pre-pottery levels at K.G.M. were immediately overlain by strata with very coarse and crude pottery, the cultural context of which is still unknown. This in turn was sealed, to the surface in the small square excavated by Fairservis, by a culture with apparent affinities with Fairservis' Kechi Beg culture. (This is really no more than a component of Piggott's Amri-Nal group). Quetta ware occurs on the surface at K.G.M., but was not found stratified. It is clear, however, from excavations at Damb Saadat, south of Quetta, that Quetta ware is later than the Amri-Nal group. As I have already pointed out (ANTIQUITY, 98, p. 76), at K.G.M. the Quetta ware people settled on the sunny, lee side of the *damb* raised by their predecessors including the pre-pottery people. Hence Quetta ware was not found on the summit of the mound, where Fairservis excavated.

Finally, may I protest at your following Fairservis' regrettable example in abbreviating the name of the site to Kili. Kili means simply ' occupied place ' and to be determinate it must be qualified, e.g. by the name of the village headman. A one-degree square of the 1 : 1,000,000 map (Sulaimen Mountains), picked at random, shows 6 kilis out of a total of 30 village names. It is Kili Ghul Mohammad or nothing !

Yours sincerely,

Abbey House Museum,
Leeds, 5

LESLIE ALCOCK.

The review of the Abbé Breuil's *Four Hundred Centuries of Cave Art* which appeared in a recent number of ANTIQUITY (No. 105, March 1953, pp. 47–50) seems to me to call for some comment. The reviewer, though appreciative of Breuil's unique authority in this field, makes criticisms of which some amount to an accusation of inaccurate copying on the Abbé's part, and a misleading of his readers. In every case these criticisms are due to a misunderstanding by the reviewer which could have been avoided by consulting someone familiar with the originals and with the conditions under which both drawings and photographs are made.

As a general rule it can be said that direct photographs of cave paintings are nearly always more or less subject to distortion for two reasons; firstly because the rock surface on which the pictures are made, far from being flat like a canvas, is usually very irregular, and secondly because more often than not it is impossible to get a good position for the camera. In narrow corridors, as at Les Combarelles, or under an overhanging ledge, as in parts of Les Trois Frères and Lascaux, the lens is too close to the rock wall, while in other cases figures placed high up or in recesses must be taken by oblique shots which can give very misleading results. Breuil's copies on the other hand, are done by direct tracing of the originals, which reproduces the picture as though laid out on a flat surface ; no one who has seen him at work on the spot can possibly doubt the care for accuracy with which these copies have been made. At Altamira, where the fragility of the paintings made tracing impossible, careful measurements were taken, and the drawings were made to scale on squared paper. Far from it being possible to check drawings by photographs, as the reviewer claims, it is nearly always necessary to check the photographs by drawings which render the proportions more correctly. The suggestion that discrepancies between drawings and photographs may have crept in because the former are ' copies of copies ', re-drawn from Breuil's originals by another hand, is unfounded. On this point I have consulted the author, who tells me that with the single exception of the colour ' composition ' of the Altamira ceiling signed by Gaston Ferré (pp. 54–55), none of his figures have been redrawn. The ' realization ' attributed to Monsieur Windels on the title-page is confined to the grouping of the plates and the material production of the book.

If we now examine the actual examples specified by the reviewer we see that his accusation of miscopying does not stand up to scrutiny. In the case of the bison from Altamira (figs. 9, 17) the apparently more oblique position of the forelegs in the photograph is due to the convexity of the rock and the angle from which the picture had to be taken ; the rendering of the legs in the drawing is in fact correct. Of the ' three rather indistinct broad lines immediately behind the forelegs ' the two not reproduced by Breuil form part of a modern smoke inscription which confuses the figure in this region, as is made clear in Breuil and Obermaier (Altamira, 1935). Finally, with regard to the S-shaped horn, the upper part appears to me to be perfectly visible on the photograph.

The reviewer's most biting remarks are reserved for the copy of the Sorcerer of Les Trois Frères (fig. 130). In this case, the original figure, partly painted and partly engraved, is placed high up on the cave wall, and must have been executed from a rather perilous narrow shelf which brings the eye of the observer close up to the rock. Breuil's tracing was made, with great difficulty, from this same shelf, but the photograph had to be taken from 4 metres below, with the result that there is great distortion, and that the engraved parts are invisible. The reviewer discerns a ' palpable error ' in the delineation of the arms, but in fact the forearms, which are engraved and not painted, are invisible on the photograph ; the dark smudge which appears to prolong the upper arm is the shadow of a rocky lump similar to that seen in the upper left-hand corner of the print. The further assertion that the body-markings are miscopied seems to me rash when based on a

photograph with this degree of distortion, in which, moreover, as we have just seen, it is often difficult to distinguish shadows from paint.

The third case, cited as an example of a fine work of art spoiled by bad photography, is the little bison engraved on the clay floor of Niaux (fig. 163). Here the figure lies tucked away under a low shelf of rock, so that a vertical photograph is impossible, and even an oblique must be taken from so close that clean focusing over the whole surface is unattainable. It is not therefore a case, as suggested, in which good photography is ' quite easy '.

A reviewer naturally has full liberty to criticise and state his views, but an author also has rights, and when an accusation of misleading the public by inaccurate copying directed against an eminent prehistorian who has devoted a life-time to this work, is based on a hasty judgment which is itself inaccurate, an informed reader may be allowed to protest.

D. A. E. Garrod.

Date-production*

Zeuner, who diligently zones
the strata, dating dateless stones,
and back to Protylopus carries
the pedigree of dromedaries,
has rolled his chronological
researches up into one ball.

My pleasant job is to review
' Dating the Past ', of which a new
edition swims into my ken,
published by Messrs Methuen.
He tabulates the system which
was started by Milankovič ;
it has a very marked proclivity
for curves of radioactivity ;
but whether M. is right or wrong
should be discussed in prose, not song ;
nor matters it how Z. reacts,
the main thing is—he gives the facts.

Had I but space enough and time
(and hadn't got to find a rhyme)
I would set down in ink the ways
that dates are got from cosmic rays,
or chat about the time it takes
to get a dinosaur from snakes,
though Zeuner might quite well refuse
acceptance of my inky views.

Well, Zeuner, ' All behind us lie
deserts of vast eternity ',
but not before us, so I'll stop :
the book's on sale in every shop.

O.G.S.C.

* With apologies to the late Andrew Marvell.

Reviews

ASPECTS OF ARCHAEOLOGY IN BRITAIN AND BEYOND. Essays presented to O. G. S. Crawford, edited by W. F. GRIMES. *pp.* 386, 22 *pl.*, 72 *figs.* *London: H. W. Edwards*, 1951.

Ever since interest in Archaeology in Britain arose, the way archaeological evidence was secured apart from excavating by looking around with a keen eye and by observing seemingly unimportant facts on the surface has been significant.

In studying this ' History in the open air ' every generation had its own scholars and its own new methods. The present generation has O. G. S. Crawford, and with Crawford archaeological reconnaissance from the air and archaeological maps, to mention only two of the most striking aspects of Crawford's activities. To understand the scope of his work one has but to turn over the pages of ANTIQUITY, the journal which he founded and has edited since its foundation and which is typical of this particular aspect of British Archaeology.

The present volume contains the tribute paid by 21 British Archaeologists to Crawford, commemorating his 65th birthday, and the 100th number of ANTIQUITY. What has been said about the outstanding character of British Archaeology is happily expressed in this volume. The subjects of the papers range as widely as the studies of Crawford himself. The editor must be praised on this account. ' The Man and his Past ', by Sir John L. Myres, pp. 1–17, gives the biography of Crawford, who was the first Archaeology Officer of the Ordnance Survey ; a qualification which but partly expresses the magnitude and character of his work—' in Britain and Beyond '—as described in the biography. However, the record needs rectifications on some minor points. On page 3, one should read ' Park Crescent ' and ' fippence ' instead of ' Park Place ' and ' Fiffpence '. Malim's guide (p. 4) was Hubbard's ' Neolithic Dew-ponds and Cattleways '. The ' Handy Classical Maps ' were published by Murray (p. 5) and Grundy edited that of Roman Britain. On p. 6 one should read ' Jebel Moya ' where ' Abu Geili ' is printed. The enlisting (p. 7) and not the going to France took place on 1st September, and instead of (same page) ' FF.2b's ' and ' Sir Kirk Park ' read 'FE.2b's ' and ' Sir Keith Park '. The trading of maps took place at Landshut (p. 8), the paper of 1921 deals with Saxon Bounds. On p. 9, the barrows were discovered, not merely only recorded. ' Oxenwood ' should be printed for ' Evenwood ' on p. 10 ; in 1925 his former Wing Commander was Air Vice-Marshal, who died soon after the war. On p. 13 the name of the Long Barrow at Wexcombe is ' Tow Barrow ' on ' Andrews and Duruy's Map of Wilts ', and in 1927 only the *land* round Stonehenge was bought. On p. 14 one should add ' from the air ' between : in vain . . . for the reputed, etc. The Cambridge Meeting of the British Association, to conclude with, did not take place in 1904, but in 1925.

There is a ' Bibliography of the Published Work of O. G. S. Crawford ' on p. 382; the reading of titles is worthwhile in itself.

As to the papers, the reviewer can best arrange them by subject, so that readers can choose themselves.

GENERAL. In ' Time and Memory ', pp. 18–31, the late Sir Charles Arden-Close properly inaugurates the series of articles on Archaeology with some reflections on the character of time. He then endeavours to estimate the reliability of memory, both

individual memory and that preserved by oral transmission. Having dwelt upon the possible supernatural transmission of memory, he relates three English legends. I cannot completely share his opinion that the origin of legends is better illuminated by prehistory than *vice versa*. A legend like that concerning the Hinzerberg near Seddin (Prignitz) or the ' Raknehaugen ' in Norway may prove useful to the prehistorian.

The songs recorded by Cecil Sharp in the Appalachian mountains illustrate the author's remark about musical survivals from the past. These represent the folk-songs of late XVI–XVII cent. England, as they were taken to America by emigrants.

V. Gordon Childe tries to track the origin of ' The Balanced Sickle ', pp. 39–48. Steensberg stressed the significance of its occurrence in Iron Age Europe, without giving its descent. Childe classifies three groups ; the blade of the *tangential sickle* is slightly bent forward, that of the *angled type* is strongly bent forward ; both are classified by Steensberg as angled. The blade of the third type, *balanced sickle* is bent backward. They all first appear in bone, armed with flint, and were translated into metal in the 2nd millennium. Grooved, socketed and button sickles originate from the angled type. The Mycenaean sickle represents the tangential type. The balanced flint sickle is known from I dyn. Egypt, where later on it disappears. But the metal looped sickles from Hither Asia represent second millennium survivals of the type; hence possible transmission to Europe. In second millennium Spain a balanced flint sickle is known. But here it was never translated into metal. There are instructive illustrations.

Grahame Clark, in his paper ' Folk-culture and European Prehistory ', pp. 49–65, gives us his appreciation of the sources of ethnology for the Prehistorian, following the challenge of Crawford's work in this field. He urges us to be on the alert. Not always are human activities obedient to natural laws, and accordingly different human beings and societies may, in comparable circumstances, act in different ways. Clark formulates the opinion that in the case of especially striking analogies (such as those from Palaeolithic Archaeology) conclusions may be drawn from ethnological evidence from remote areas. But for the rest, the prehistorian should focus on Folk-culture, when the historical context of phenomena compared is evident. Clark enumerates examples, illustrating the different cases in which Folk-culture enables interpretation of relics and facts otherwise incomprehensible. Especially the study of recent farming—its apparatus and practices—proves to be fruitful. Note e.g. the article by E. Estyn Evans. Nevertheless, the prehistorian must be on his guard against preconceptions based on his study of Folk-culture. He then may prove to have put the cart before the horse.

C. W. Phillips gives an essay on ' The Fenland Research Committee, its past achievements and future Prospects ', pp. 258–71. This useful summary is set against the background of a sketch of the scientific problems presented by the Fenlands. The alternating cultivation and abandonment of the land by men in relation to subsequent coverings of peat and transgression by sea, are problems well known to continental scholars—they will welcome this survey and the bibliography that follows.

There is another summary by J. K. St. Joseph, ' A Survey of Pioneering in Air Photography ', pp. 303–15, dealing with possibilities, history and promises of Air-photography. The achievements recorded in Britain and Syria are outstanding and an example to other countries. There are bibliographical notes, and six Air photos by the author, instructive and also of artistic value.

THE NEAR AND MIDDLE EAST. In ' Meroe and India ', p. 32–8, A. J. Arkell considers two reliefs of temples built by King Netekamāni of Meroe (*c.*15 B.C.–A.D. 15) which show unmistakable Indian influence, and he suggests that Meroitic water reservoirs were also of Indian origin. These reservoirs apparently appeared first in the

same period, due to climatic changes and overgrazing. The influence could reach the Sudan by way of the route leading from the Red Sea to the river Atbara. As a second possibility Arkell suggests Indian influence was due to the Touaregs, who came for the first time to the Sudan in the 1st cent. A.D., introducing the camel. There is some evidence, which suggests that the Touaregs left the Asiatic steppes (their hypothetic homeland), perhaps in conjunction with migrations originating in W. China between 174–160 B.C.

Sir Mortimer Wheeler contributes an important discussion on ' Roman Contact with India, Pakistan and Afghanistan ' (pp. 341–81), his starting point being archaeological evidence from three geographically and historically different sites. The material from the *North-Western Hills and Plains* consists of a hoard found at Begrām, containing Mediterranean bronzes and glass (I–III cent. A.D.) and finds from Taxila's second city (*c.* 50 B.C.–A.D. 150). Some characteristics of these objects point to Alexandria, and in doing so suggest oversea rather then continental traffic. (Marshall's report on the Taxila excavations[1] which appeared after the present volume does not seem to affect this evidence ; but it is only known to the present reviewer from a review by Wheeler[2]). The finds might represent the ' rake-off ' secured by Kushāna princes, as middlemen, of the transit trade between the West and Farther Asia, when direct traffic through hostile Parthia was barred. Mediterranean imports in the *Central Plateau and adjacent coastal strips* are only known by two bronzes (hitherto unpublished Poseidon statuette, with photo) and some coins ; but many ' bullae ' and golden medals based on Roman coins have been found—these rarely occur outside this region. Apparently the Andhras, who ruled here in the I–II cent. A.D., were exclusive, possibly by reason of geographical remoteness.

In *South India* the majority of Roman coins have been found. Here we encounter a regular trading station with a depôt of Roman goods, Arikamedu on the South-east coast, investigated in 1945 and since published. Wheeler gives a summary (and four illustrations, e.g. of Arretine ware), and suggests that three other places might be comparable sites. His conclusion, based upon Arikamedu evidence, is that regular Roman trade with ' factories ' was established early in the 1st cent. A.D., utilizing the S.W. Monsoon.

The author then deals with *Roman coins* in India (all coin-finds are listed according to provinces on pp. 345–81, with summary map). The majority—all of them apparently of good quality gold and silver—occur in South India as hoards representing bullion ; only in the Andhra kingdom some finds may indicate circulation of Roman coins as currency. The 2nd cent. Kushāna empire however had its own gold coins struck to Roman standards. Within this Empire the absence of Roman gold coins may indicate reminting of these into native coins. Possibly also the Kushāns did not permit rival currency in the border states—this might be inferred from the occurrence there of aurei, defaced and relegated to bullion. A concentration of Augustan to Neronean coin-hoards in the Coinbatore gap proves the overland traffic from Malābār to the eastern coast and the reluctance, well attested by the Periplus and Pliny, to sail around Cape Comorin.

Roman coins of a later dater than Nero are seldom found in the gap—perhaps because of the replacement of bullion by other merchandise—and Ptolemy proves that the circumpeninsular sea route was in full swing by then, as the presence of Roman coins in

[1] Sir John Marshall, *Taxila*, Cambridge, 1951.

[2] *Ant. Journ.*, Vol. XXXII, pp. 204–206.

Ceylon shows also. Collateral evidence suggests a decline of the trade with the West during the 3rd cent., but 4th cent. Roman copper coins in the south make a partial revival of trade likely. Wheeler's article, the last of the series, is a most worthy key-stone.

Neolithic and Bronze Age Britain. Stuart Piggott's command of the available knowledge makes the crow's nest post he occupies in his ' Stonehenge Reviewed ' (pp. 274–92) of high strategic importance. Moreover he does not restrict himself to Stonehenge alone, but tries to define as well the different cultural phases connected with Stonehenge and comparable sites. Stonehenge I, which consisted of a ring of ritual pits (Aubrey holes)[3] within a ditch with internal bank, and perhaps a central circular timber structure, is supposed to have been built about the transition Neolithic–Bronze Age and to belong to a culture, characterised by Peterborough and Groove-ware pottery, typical flint implements (e.g. a petit tranchet derivative) and single entranced Henge-monuments. This culture, to which cremation was known, should have its ancestry in Neolithic cultures pointing rather to N.E. Europe, and should itself be an important source to the Bronze Age Food Vessel culture. Stonehenge II, consisting of the stone copy of a wooden structure, outlying stones set upright and the Avenue, should be due to the Wessex culture. This probably came into being through the immigration of a ruling Breton minority over essential Food Vessel elements. The Presely stones were brought along trading routes trodden since Neolithic times, one of these stones being found in a Long Barrow of the Windmill Hill period. One can but regret that it was not possible to use the evidence derived from pollen analysis of the silts of ditch and Aubrey holes, the soil under the bank, etc., in connection with earlier excavations of the barrows around Stonehenge. Coherence and delimitation of cultures concerned could then probably be more firmly established. Prof. Piggott's review offers a splendid starting point to a renewed tackling of these problems.[4])

Iron Age and Roman Britain. In ' The Romano-British Buildings and Enclosures in Edlington Wood near Doncaster ' (pp. 66–92) Philip Corder notices some oval enclosures with rampart construction and no ditch, akin to Northumberland hut-villages, and probably occupied during the 2nd and 3rd cent. Apart from these, there are basements of three rectangular stone structures (size about 40 by 20 feet). Roman sherds probably attest their date. Similar buildings are known from northern hut-village sites, where dating proved difficult. Therefore excavation of these separate buildings is desirable. There are 9 illustrations and an exact description of but partly localised finds.

E. Cecil Curwen deals with ' Cross-Ridge Dykes in Sussex ' (pp. 93–107, 6 maps), earthworks sometimes occurring in connection with Celtic fields, which however remain rather obscure in their purpose and cultural position. Might not pollen analysis applied to the virgin soil under the banks clarify their exact relation to the Celtic fields and indicate the ridge vegetation, important for their interpretation ?

To define the survival of Bronze Age forge tradition, C. F. C. Hawkes writes on ' Bronze-workers, Cauldrons and Bucket-animals in Iron Age and Roman Britain ' (pp. 172–99). Close to the old mines, far away from iron-bringing immigrants, this survival is highly probable. Moreover, as iron was only to supplement the primary equipment, much was left to the bronze smith. And notwithstanding deep Roman

[3] ' Identification ', *Ant. Journ.*, Vol. XXXII, 1952, pp. 14–21.

[4] See also : R. J. C. Atkinson's chapter on Henge-monuments in *Excavations at Dorchester*, Oxford 1951, where a classification and a description of all the Henge-monuments yet known are to be found.

influence on the bronze-manufacture, even then the old tradition could survive for local purposes away from the centres of Roman civilisation. Hawkes then penetratingly examines two types of utilitarian objects, as ' ornamental ' objects are more influenced by new styles. Cauldrons and Bucket-animals prove the old traditions—modified—to persist into the Age of Anglo-Saxon settlement. The illustrations are fine.

A. H. A. Hogg combines the data and the opinions concerning ' The Votadini ' (pp. 200–19, 5 figs.), in order to give an idea of this tribe, living between Tyne and Forth, and figuring in prehistory from the Iron Age to Anglo-Saxon times. He adds a description of pottery from Traprain Law, the archaeologically best known settlement of the tribe, and suggests an undisturbed development from the late Bronze Age.

Ian A. Richmond demonstrates ' A Roman Arterial Signalling System in the Stainmore Pass ' (pp. 293–302). The Roman posts along the highroad concerned prove to be mutually visible, except two of them, Maiden Castle and Bowes Moor. At the third point, however, away from the highroad amid impassable ground there are remains of a third post, Rupert Castle, just in view of both Maiden Castle and Bowes Moor. Excavation has to reveal the true character of the system. Most likely semaphores were used, for regular transmission of varied messages. With the pen of one who is conscious of the principles of policy and propaganda, C. E. Stevens writes some exquisite pages entitled ' Britain between the Invasions (54 B.C.–A.D. 43) ; a Study of Ancient Diplomacy ' (pp. 332–44). A policy of Imperial conquest at first, gradually transformed by Augustus into ' balance of power ' policy based on support of the weakest, which lasted till short-sighted British monarchs compelled Claudius to start off conquering again, is followed step by step. Some hypotheses are rather conjectural—attractive though they are, such as the one suggesting the Whaddon Chase gold hoard to have been the tribute to Rome, captured by highwaymen.

A study of W. F. Grimes is devoted to the course, in connection with geological conditions, of ' The Jurassic Way ' (pp. 144–71) and to the part it played in the diffusion of cultures, notably in the Iron Age, as road and boundary. Seven figures and a plate help our understanding.

Dark Age Britain. Important is the discussion on ' The Adventus Saxonum ' contributed by J. N. L. Myres (pp. 221–41). The author first gives a penetrating analysis of the contradictory statements of Dark Age sources and discusses ideas so far put forward to give a satisfactory explanation. Archaeological evidence suggests a difference between Saxon cultures in Anglia and in more Southern regions and perhaps a somewhat earlier origin of the first. But Dark Age writers, who tend to focus on the Kentish Saxons, may easily misguide in doing so. Consequently, Myres suggests a coming of the Saxons in subsequent stages in different regions. Thus sources can be reconciled after but one rectification, as proposed by Stevens, in the text of Gildas.

Medieval and Modern Britain. The papers of E. Estyn Evans, ' Some Archaic Forms of Agricultural Transport in Ulster ' (pp. 108–23) and Sir Cyril Fox, ' The Round-chimneyed Farmhouses of Northern Pembrokeshire ' (pp. 124–43) exemplify the statement, made by Grahame Clark in his contribution, that particular aspects of farming may embody surviving prehistoric traditions.

In the first article we encounter all kinds of primitive vehicles that are on the point of vanishing and appear to have their European counterparts in Wales, Scotland, Scandinavia and Northern Spain.

Fox adds another round-chimneyed farmhouse to those already recorded, and discusses the typical features. As a possible prototype of the houseplan with cross-passage and sometimes out-shuts or recesses, he suggests the Dark Age platform-house,

first known from Glamorgan. Both articles are amply provided with drawings, plans and photos.

To the 'Southampton Town Wall' B. H. St. J. O'Neil dedicates a thorough study (pp. 243–57). Three periods of construction emerge from historical record, whereas a careful scrutiny of the wall itself in comparison with house-wall building in the town reveals five styles of masonry. The first style, of Norman character, *c.* 1150, is not testified by historical documents. The other styles show a correspondance with the historical periods, *c.* 1200–1382. The parts built in style V, however, that completed the wall, are perhaps of a somewhat later origin. The 10 photos and 3 plans are well chosen.

'Glen Urquhart and its Castle' (pp. 316–31, 4 figs, 1 plate) offers 'in many ways a singularly complete vignette of Highland archaeology and history', as the author, W. Douglas Simpson, puts it. Cultural movements in E. and W. directions along the Great Glen during all periods are testified here. Special attention is paid to the important castle and the roll it played after the 13th century.

Good production makes the handling of this book a pleasure; personal friendship gives some of the articles a special character which makes the reading a delight. Moreover, we have to realise its scientific importance. Altogether, it is an exquisite birthday present.

J. v. d. Waals,
R. J. Forbes.

THE DOMESDAY GEOGRAPHY OF EASTERN ENGLAND. *By* H. G. Darby, *Cambridge University Press*, 1952. *Price* 55 *shillings.*

It is only twelve years ago that Professor Darby published two substantial volumes in which he surveyed *The Medieval Fenland* and *The Draining of the Fens*. His place as a master of the science of Historical Geography was then already secure. The present work is the first of six projected volumes in which Professor Darby proposes with the help of a little band of scholars to give historians what Bishop Stubbs described as 'a really true Domesday map'. This first volume, for which Professor Darby is alone responsible, deals with the counties of Lincoln, Norfolk, Suffolk, Essex, Cambridge, and Huntingdon. It is no part of the author's plan to discuss again the methods of the Domesday Commissioners or the stages by which the returns of the village juries were converted into Domesday Book as it is today. In his first chapter he sets out impartially the theories propounded by various scholars and gives an excellent survey of Domesday studies beginning with the 'abstract of population' made by Sir Henry Ellis in 1833. Since Stubbs described his day dream 'of a Domesday Society: a devoted little band of savants, who might each undertake a separate county' Maitland's *tour de force*, *Domesday Book and Beyond*, has drawn many young people to the study of the Survey and J. H. Round established the form in which the *Victoria County History of England* has treated the descriptions of individual counties. Among much good work on Domesday Book, which has particular relevance to the present volume, the Bedfordshire Historical Record Society and the Lincoln Record Society each has issued a volume relating to the description of its own county which Professor Darby has been able to commend.

Domesday Book is much more than a collection of disparate fragments, but the task of drawing conclusions from the detailed examination of the whole book is formidable. The sheer size of the survey is hardly realised by those who use the separate accounts in the columes of the *Victoria County History*. The Domesday clerks much abbreviated their words and avoided unnecessary verbs. An extended copy of the text would take

three, or even four, times as much space as the original. Not all the juries answered the same questions in the same way and not all the clerks dealt in the same way with the material before them. How many clerks were employed in the work of compiling Domesday Book and the Little Domesday Book cannot now be determined. There are signs of haste in the manuscript, but it is a beautiful piece of work, an amazing achievement which could only have been carried through in a conquered land. The Domesday clerks had no equipment save their quill pens, red and black ink, their rulers, and a plentiful supply of the best parchment available. Of necessity they used Roman numerals and they were describing an alien economy. That sheer errors sometimes crept into this vast work was inevitable. Professor Darby fully realises how necessary it is to approach Domesday facts and figures with caution. But he has turned to the study of the survey at a fortunate moment. So much work has been done since Round in *Feudal England* demonstrated the artificiality of the system of assessment underlying Domesday Book that it seems unlikely that much more can be discovered about it. The English Place-Name Society has done much to make easier the identification of the place-names recorded in Domesday Book. It was time that a scholar with the scientific equipment of Professor Darby should set himself to equate the information of the survey with the land of England.

Each of the six counties dealt with in the present volume is treated in a separate chapter and each chapter is lavishly illustrated with maps. A map of the wapentakes or hundreds of each county, a relief map, and a geological map set the scene for the Domesday figures. An outline map of Lincolnshire showing the historic divisions of Lindsey (with its three ridings), Kesteven, and Holland, is also added, and for some counties a soil map is given. Each chapter contains a map in which the places mentioned in Domesday Book are indicated by dots. On opposing pages two maps illustrate the distributions of plough teams in the shires ; on the left-hand the villages are indicated by black circles of varying sizes proportionate to the number of plough teams each village maintained and on the right-hand the number of teams per square mile is shown. Two population maps, set on opposing pages, show the number of individuals recorded in each Domesday village and the population per square mile. For those counties where team-lands, or plough-lands, are given, maps illustrate their number to the square mile. For each county, maps showing the woodland, meadow, marsh, fisheries, saltpans, and mills recorded in the survey help to indicate the varying economy of the shires in 1086. For Lincolnshire a map of the waste in 1086 is given and for Norfolk, Suffolk, and Essex maps showing the sheep on the demesne. For Essex two complementary maps face each other, one showing the Domesday meadow and the other showing the pasture for sheep on the famous Essex marshes. Much thought has gone to the lay out of the pages, which could not be bettered. Huntingdonshire is small enough for two maps to be put side by side on the same page. Maps indicating the ' regional subdivisions ' of each county in accordance with its variations of soil and contour are provided for Lincolnshire, Norfolk, Suffolk, and Essex. Professor Darby has not attempted to map the Domesday churches, for the clerks were erratic in their method of recording them.

The last chapter is illustrated by eleven maps of the whole area with which the book is concerned. They bring together in one page results set out separately in the individual county maps. Even a population map of the six counties reduced to fit a single page shows clearly enough the areas where few people lived in 1086. The Fenland is an empty space. The Breckland of north-west Suffolk and south-west Norfolk and the marshes round the Isle of Axholme are bare patches on the map. The string of villages beneath the Lincoln Edge stand out the more clearly for the empty heath behind

them. Parts of East Anglia are shown as the most populous area of all the six counties. Miss Barbara Dodwell's work on the free peasantry of East Anglia at the time of Domesday Book and at the end of the 12th century has done much to display the curious economy of this region. Her evidence indicates that Professor Darby is right in assuming little duplication in the Domesday population-figures for these counties even where many men are recorded with minute holdings.

Professor Darby rightly makes no attempt to indicate the total population of the shires with which he deals. His maps illustrate the actual number of freemen, sokemen, villeins, bordars, and *servi* who are recorded in the survey. With the exception of the *servi*, slaves, whom Professor Darby calls serfs, each individual mentioned in Domesday is the head of a household, the holder of a tenement, however small. In view of the domestic character of Anglo-Saxon slavery the *servi* of Domesday must be regarded as individuals, appurtenant, like the animals recorded in Domesday, to the manor where they lived. To record the *servi* of Domesday on the same map with the other ranks of rural society is not entirely satisfactory. The map for Lincolnshire is not affected because no *servi* are recorded for that county. In this last chapter Professor Darby tries to meet this objection, of which he is very well aware, by printing on the left-hand page a map bringing together the population maps in the previous chapters, and on the right-hand page a map which he describes as ' adjusted for serfs '. In order to draw this map he has assumed that the average household behind the freemen, sokemen, villeins and bordars is four persons, so that if he divides the actual number of *servi* by four the resulting figure will be roughly parallel with the Domesday figure for the other classes of rural society. There is no satisfactory evidence to suggest that the average rural household was as few as four in the middle ages. To this reviewer, remembering her childhood in the country, four seems far too low a figure for the average peasant household of 1086, when labourers and servants, as well as children, old people, and widows, lived together in the normal farmhouse of the period. It would perhaps have been better to leave out the *servi* from the population map and indicate on it heads of households only.

It should, however, be emphasised that these uncertainties do not affect the value of the maps in this book if they are regarded, as they are by their author, as a means of comparing the economic condition of different parts of eastern England in 1086. The counties of close Scandinavian settlement stand out as having a high proportion of free peasantry in 1086. It would have been interesting to see a map showing the numbers of villeins and bordars printed opposite the map showing the free peasantry, for the contrast between free and unfree comes to lie in the 12th century between freemen and sokemen on the one hand and villeins and cottagers on the other. The *servi* of Domesday Book are a vanishing class.

The maps of meadow and woodland in the last chapter show the heavy woodland of Essex balanced by the considerable amount of meadow in northern Lincolnshire. In 38 places in Essex the areas of woodland decreased between 1066 and 1086. Round regarded this decrease as representing an ' extension of the cultivated area ', but Mr Lennard has recently pointed out that in many areas where woodland had decreased the number of plough teams had also decreased. He regards the disappearance of woodland as due not to assarting but to wasting. The twenty years of the Conqueror's reign were years of much castle building. Many incoming Frenchmen needed houses and the devastation of war was being made good. Many trees of necessity were felled and woods thus wasted. It was for later generations to grub up the roots and turn the land with the plough. The process of assarting was a seismic movement.

The interest of this book is great and as further volumes are published the interest will increase. It is in no carping spirit that the present writer ventures to wonder whether Professor Darby will be able to present in a handy form within the confines of a volume a conspectus of his results for the whole land. The volume is excellently produced at a reasonable price and the maps are delightful, but how pleasing they would have been had they been presented on a page the size of *The Oxford Atlas*.

DORIS M. STENTON.

ENGLISH ART, 871–1100. *By* D. TALBOT RICE. *Oxford at the Clarendon Press*, 1952. XIX + 280 *pp.*, 96 *plates*, 2 *maps*. 37*s* 6*d*.

ENGLISH ART, 1307–1461. *By* JOAN EVANS. *Oxford at the Clarendon Press*, 1949. XXI + 272 *pp.*, 96 *plates*. 30*s*.

THE OXFORD HISTORY OF ENGLISH ART. *Edited by* T. S. R. BOASE. Vols. II *and* V.

It is only in recent years that the study of art history as it is known on the continents of Europe and America has made a place for itself in the scholarly life of this country, and in the older universities in particular it has yet to be accepted as an academic discipline. The decision of the Delegates of the Clarendon Press to publish a History of English Art in eleven volumes is therefore an event of some importance, and in aiming at 'a treatment of the subject similar to that given to general English history in the *Oxford History of England*' they have set before their authors the highest possible standard of scholarship.

To say that Professor Talbot Rice's book does not achieve this standard is not to deny that he has made a substantial contribution to the study of Anglo-Saxon art: but as yet there are too many unsolved problems of dating and provenance, too many opportunities for judgments based solely on personal taste and experience, for it to be possible to write a history of Old English art which will stand comparison with Professor Stenton's equivalent volume of the *Oxford History of England*. Professor Talbot Rice is himself an authority on Byzantine art and it was therefore to be expected that he would stress the Byzantine element in Anglo-Saxon art at the expense of the Norse element recently emphasised by Sir Thomas Kendrick. There will be some who will think that he has not always proved his case (e.g. in his somewhat ambiguous discussion of the Langford and Romsey roods), and it is difficult to avoid the conclusion that this is a book with a thesis rather than a dispassionate review of the evidence by one who is not committed to any preconceived notion of the sources from which Anglo-Saxon artists drew their inspiration. The author is on less controversial ground in emphasising the importance of Carolingian and Ottonian influence, though the historian will note with surprise the absence from Professor Talbot Rice's bibliography of Mr Grierson's important paper on 'England and Flanders before the Norman Conquest', and will wonder why he fails to draw attention to the derivation of the great seal of Edward the Confessor from Otto III's 'seal of majesty'. These in themselves are minor omissions: but they point to the fundamental weakness of a book written by an art-historian who is not fully acquainted with other aspects of the period with which he is dealing, and the reader of the somewhat jejune summary of Anglo-Saxon history with which the book is prefaced may indeed wonder whether the writer has tried to correlate his art and his history in the most profitable way. For it is possible for the art-historian to place too much emphasis on the political events chronicled by his 'general' colleague, and to neglect to study the framework of society in which his art was created. Certainly a greater knowledge of the organisation of the Anglo-Saxon church would have enabled Professor Talbot Rice to

give a more intelligible account of some of its surviving buildings (p. 64), and a better acquaintance with the written sources would have saved him from attributing to Asser, William of Malmesbury's description of Alfred's church at Athelney (p. 67). In general, however, his account of later Anglo-Saxon architecture may be regarded as a competent summary of the present state of knowledge, though one would like to know on what grounds he assigns (plate 2 *b*) the timber church at Greenstead to the 10th century when even its pre-Conquest date must be regarded as uncertain. It is otherwise with the period between 1066 and 1100, which is dismissed in ten pages, without a single plan or plate, and it is surprising to find no mention (except in the bibliography) of the late Professor Saxl's reconstruction of the Norman west front of Lincoln Cathedral, or of the important group of 11th century churches in that city. The remaining chapters are concerned with sculpture, ivories, manuscripts, and minor arts such as metal-work. They involve questions of provenance, dating and influence upon which the reviewer is not competent to pronounce, It is evident, however, that these are matters upon which there is as yet no general agreement among scholars, and that the time has not yet come for an authoritative synthesis such as a work of this kind might normally be expected to provide. Meanwhile both the student and the amateur will be grateful to Professor Talbot Rice for providing them with an interim report which will serve until further research makes possible a definitive history of Anglo-Saxon art.

Where Professor Talbot Rice has been given the unenviable task of imposing order on the scattered fragments of later Saxon art, Dr Evans has had the problem of selecting the significant and the typical from a superabundance of examples. There can be no doubt that she has performed it with remarkable judgment and skill. Her plates (though not always accurately captioned) have evidently been chosen with particular care, and their standard of reproduction is excellent. Her style is eloquent without being pretentious, and she knows how to be learned without being tedious. Her bibliography is extensive, and her footnotes show how widely she has read. In treating her subject in terms of patronage rather than subdividing it into artificial periods or museum classifications (ironwork, woodwork, etc.) she has maintained that contact with historical reality which is one of the professed aims of the series. To quote her own words ' we can see the masons and imagers setting up the Eleanor crosses ; the team of illuminators engaged upon the Tickhill Psalter ; the abbot of Gloucester transforming his Norman choir into something modern ; the Black Prince planning his funeral with the pageantry of a tournament ; his son striving to bring fanciful beauty into his court '. In studying medieval art in this way we see it, as Dr Evans herself says, ' as a series of vignettes rather than as a continuous story '. But in doing so we see it through the eyes of those who commissioned it instead of through the spectacles of academic scholarship, and the method is justified by its evident success. What we do not see so clearly is the way in which the craftsman organised themselves in response to the demands of their patrons. Here and there there is an incidental reference to a shortage of masons or to the existence of a royal embroiderer ; but (in spite of all that has recently been written on the subject) there is no attempt to discuss the status of the mason-architect, no reference at all to the part played by the medieval Office of Works in forming an architectural tradition. It is a pity that Dr Evans did not choose to examine this question, for if some recent research is to be trusted, the origins of the Perpendicular style are to be sought in the King's Works at Westminster rather than in the old idea of a ' West Country school of masons ' to which Dr Evans apparently adheres.

There is one other major criticism to which this otherwise excellent book unhappily lays itself open : its standard of factual accuracy falls seriously short of that which one is

entitled to expect in a work published by a university press and written by a scholar of Dr Evans's standing. It does not greatly matter (though it is irritating enough to discover) that the references to J. Nichols' *Wills of the Kings and Queens of England* (1780) and N. H. Nicolas's *Testamenta Vetusta* (1826) should frequently have been confused, or that the numbers of the plates are so often wrongly cited in the text: but substantial lists of more serious inaccuracies have been published by previous reviewers*, and it is unfortunately necessary to make the following additional corrections :—p. 2, for ' Hardby in Lincolnshire ' read ' Harby in Nottinghamshire ' ; p. 6, l. 10, for ' twenty ' read ' twenty-three ' ; p. 9, l. 5 from bottom, for 1257 read 1258 ; p. 27, l. 29, for ' pulpit ' read ' *pulpitum* ' ; p. 32, note 2, for ' Pickforth ' read ' Pickworth ' ; p. 35, transpose notes 1 and 2 ; p. 39, note 3, for ' Robert ' read ' Roger ' ; p. 42, for ' Henwell ' read ' Hanwell ' ; p. 51, for ' St. Paul ' read ' St. Paulinus ' ; p. 60, note 2, for ' Sir William Dugdale ' read ' William Sedgwick (Sir William Dugdale's draughtsman) ' ; p. 76, l. 9, for 1359 read 1350 ; p. 78, l. 6, for 1326 read 1327 ; p. 79, delete ' the church of Forde abbey was newly built in 1419 ' (there is no reference to a new church in the will cited) ; p. 91, l. 2, for ' priory ' read ' abbey ' ; p. 94, l. 19, for ' Pickforth ' read ' Pickworth ' ; p. 99, note 3, for ' 1382 Richard II's ' read ' 1332 Edward III's ' ; p. 107, l. 25, for ' Thomas ' read ' Philip ' ; p. 136, for ' Marlow Urban ', read ' Great Marlow ' ; p. 139, note 3, for ' Priests' brasses are commonly floriated crosses ' read ' Floriated crosses commonly commemorate priests ' ; p. 142, for ' Cumberdene ' read ' Aumberdene ' ; p. 146, l. 8, for ' Walton ' read ' Watton ' ; p. 154, l. 13, for 1343 read 1344 ; p. 154, last line, the effigy of Queen Philippa is of white marble, not bronze ; p. 155, l. 18, for ' yeoman ' read ' country gentleman ' ; p. 156, l. 10 from bottom, for 1394 read 1395 ; p. 159, note 5, for ' Baron ' read ' Brian ', for 1301 read 1306 and for 1310 read 1311 ; p. 167, for ' the tomb of William Lord Graunson, who died in 1325 ' read ' the tomb believed to commemorate Peter, Lord Grandisson, who died in 1358 ' ; p. 169, for ' Thomas, Lord Berkeley ' read ' Sir Thomas Berkeley ' ; p. 171, for ' Sir William Dugdale's ' read ' William Sedgwick's ', for ' one Robert Blewett ' read ' Bishop Robert Bloet, who died in 1123 ', note 5, for 1339 read 1340 ; p. 195, l. 26, for 1436 read 1437, l. 30, for ' a passage ' read ' the kitchen ' ; p. 238, for ' J. GARDNER ' read ' J. GAIRDNER '.

H. M. COLVIN.

OLDUVAI GORGE. A Report on the Evolution of the Hand-axe Culture in Beds I–IV. *By* L. S. B. LEAKEY. With chapters on the Geology and Fauna by the late PROFESSOR HANS RECK and DR A. T. HOPWOOD, Cambridge. *Cambridge University Press, 27th July*, 1951. 163 *pp.*, 38 *plates*, 62 *text figs.*, 2 *maps and folder. Price*, 40*s net.*

For some sixteen years prehistorians have looked forward to the publication of the results of Dr Leakey's five expeditions to the Olduvai Gorge in northern Tanganyika Territory, expeditions which were financed by the Royal Society, the Percy Sladen Memorial Fund and the Royal Geographical Society. Publication has now been made possible by the generosity of Dr Williamson of Williamson's Diamonds, Tanganyika, to whom our gratitude is indeed due. The volume conforms in every respect with the high standard for which the Cambridge University Press is so well known.

Dr Leakey has once again presented us with a book which is a model of its kind and which is absolutely basic to an understanding not only of the prehistory of East Africa

* See J. C. Dickinson in *Antiquaries' Journal*, XXXI (1951), pp. 90–2, and J. H. Harvey in *The Journal of Education*, March 1950, p. 172.

but that of Africa as a whole. On reading *Olduvai Gorge* it might appear that the collection of faunal and cultural material was a fairly simple matter but not a few of the workers on African prehistory who had the good fortune to accompany Dr Leakey on a visit to the gorge at the time of the first Pan-African Congress in 1947 and were able to gauge for themselves the extent and great richness of the deposits in the gorge will appreciate a little the arduous nature of the work of Dr Leakey and his colleagues. The work of collection and examination of the deposits was hampered by lack of water, the great heat and difficult climbs up the steep faces of the cliffs, which were necessary in order to produce the results set out so clearly and concisely in this book.

Olduvai Gorge gives us the story of the evolution of the Hand-axe Culture in East Africa, the cultural material occurring stratified within the changing deposits of a Middle Pleistocene Olduvan Lake. In an introductory chapter the author gives an account of the history of the exploration of the Olduvai Gorge as well as of the discovery and dating of the Olduvai skeleton.

The geology is dealt with in a chapter by the late Professor Hans Reck. The gorge is shown to have originated as a broad open channel from the similarly mature basin of a small soda lake developed on the Basement Complex gneiss of the Central African peneplain. The mature character is maintained until the lower reaches when the steep-sided gorge is found cut through the Middle Pleistocene Olduvai lake beds. The lowering and rejuvenation of the base-level which led to the exposure of these beds is shown to be due in the main to tectonic forces and to be entirely a product of post-Middle Pleistocene times. This tectonic movement was the cause of the dissection of the eastern margin of the plateau which was step-faulted down to the east and ended in the Balbal Depression which is thus of post-Middle Pleistocene age. This step-faulting is clearly seen exposed in the sides of the gorge where five such faults were proved. Professor Reck goes on to describe the stratigraphy, petrology and nature of each deposit in the gorge from basal lavas through light-coloured, well-stratified tuffs (Bed I), to thick deposits of marls (Bed II) indicative of long, uninterrupted deposition of lake sediments, to the controversial Red Bed (Bed III) followed by more marls (Bed IV) indicative of the same conditions which persisted at the time Bed II was formed. After the deposition of Bed IV the tectonic movement which resulted in the disappearance of the Olduvai Lake initiated the erosion of the gorge and the accumulation of the aeolian deposits of Bed V, unconformably overlying the earlier beds. Professor Reck accompanies his report with some excellent photographs of the gorge as well as a sketch map, but it would have been valuable to have included at least one section drawing.

In his chapter on the fauna Dr Hopwood summarises briefly the three main faunal stages which he recognises in the African Pleistocene retaining the names Kaiso, Olduvan and Gamblian. The continued use of these terms is perhaps to be regretted, though provided prehistorians are fully aware of their geological and cultural associations no harm will arise. In order to avoid any possible misunderstanding, however, the extension of the terms used to describe these last to cover also the faunal divisions might not perhaps be altogether undesirable. Faunal remains have been collected at Olduvai since 1913 so that it is a little disappointing to find that it is only possible to include a provisional fauna list. Dr Hopwood has analysed the general character of the fauna and it is of considerable interest to note that this is essentially a plains fauna, not a forest one, and in this respect does not differ greatly from the living fauna of the region. Not a few of the species found as fossils are shown to be still living in the same area.

In a following chapter the significance of the geological and faunal evidence is discussed by Dr Leakey. In view of the important modification of the Pleistocene

Pluvial succession which he puts forward, a critical examination of this evidence may be forgiven. Dr Leakey believes that there is evidence to show that there are in fact four Pleistocene Pluvials not three as has been accepted hitherto, and that the Kamasian should now be divided into two distinct pluvials the earlier part retaining the name Kamasian while for the latter he suggests the name ' Kanjeran '. The main site on which this modification is based is Olduvai Gorge and the crucial deposit that variously interpreted bed—Bed III.

Reck considered Bed III to be a sub-aerial land deposit similar to the red earth soils that are to be found today on the East African high plateau. He believed it to be indicative moreover of a comparatively dry period during which the Olduvai lake must either have disappeared or else considerably diminished, a climatic change sufficient, he says, to have closely divided the Middle Pleistocene into two parts. Bed III he also found was divided from those above and below by disconformities due to erosion, while the nature of the sediments showed that they were mainly brought down by water action, i.e. large numbers of lava boulders, surface wash, by wind transport and streams of water greatly swollen during rain, and that they were deposited relatively quickly. The latter deduction is perhaps supported by the cultural evidence—only one cultural stage (Stage 6) being found *in* the Red Bed.

Hopwood on the other hand believes Bed III to have been deposited in large measure in water and not to be a terrestrial deposit, and the presence of hippopotamus and crocodile remains (p. 23) in this bed would seem to substantiate this. We cannot have it both ways, however, and if the tuffs of Bed I are to be considered to have been laid down during Pluvial conditions mainly on the evidence of similar fossils found within them then the same surely should apply to Bed III. That Bed III was however deposited under *relatively* dry conditions one cannot really doubt, but one would have liked to have seen the geological evidence elaborated to some extent. There is a discrepancy also in the length of time taken for this bed to accumulate. Leakey believes it to have taken a long time whereas Reck says it was deposited fairly quickly, a view which the cultural evidence also appears to favour. There being no evidence of any tectonic movements that could have produced the lakes there seems to be every reason for assuming that Bed III does indicate a climatic change of some duration—that is, a drier period than those which preceded and succeeded it, a period which was only *relatively* drier however and could never have been anything approaching a desert climate.

Hopwood and Leakey are at variance over the significance of the faunal evidence. The former considers that it indicates no marked faunal change between the faunas of Beds II and IV, while Leakey believing the disappearance of certain genera to be significant considers that there is sufficient evidence to support such a division of the Kamasian. An important Appendix by Dr MacInnes shows in statistical form that there is a 40 per cent extinction of the fauna of Olduvai Beds I and II prior to the deposition of Bed IV and that practically one-third of the Bed IV fauna represents new species. Even though there may still be some doubt as regards the faunal evidence, the cultural clearly shows that between the top of Bed II and the base of Bed IV important development had taken place. Some of the geological and faunal evidence will need elaboration and clarification but there seems a fairly strong case in support of Dr Leakey's contention that Bed III represents not merely a climatic oscillation within a single Pluvial but a full scale interpluvial separating two pluvials. In Rhodesia and elsewhere where the geological evidence is often the only means of dating that is available, and reliance is in great measure laid upon the association of cultures with river-terrace systems it is significant that the terrace gravels of the Middle Pleistocene are, when the evidence is favourable, divisible into two

main terrace systems—an upper terrace, or terraces, with Pebble Culture and Chellean tools, and a lower terrace, or terraces, with Acheulian industries. This would seem to lend some additional support for Leakey's division of the Middle Pleistocene pluvial into two—the Kamasian and the Kanjeran.

The cultural evidence for the evolution of the Chelles-Acheul culture is perfect and based on irrefutable stratigraphy. Dr Leakey shows how development can be traced from an Olduvan culture in Bed I through the early stages (Chellean) of the Chelles-Acheul Culture within the lake muds of Bed II, through the transitional stages (Stages 4 and 5) from stone to ' wood ' technique in the top of Bed II to the Early Acheulian (Stage 6) of Bed III and the full flowering of the culture in Bed IV. Thus the complete development of the culture is unfolded in the perfectly exposed sections in the gorge. The different Stages (Olduvan and Chelles-Acheul one to eleven) are all found stratified the one above the other and only in one case (Stages 9 and 10) is there even any small doubt of the succession. Only specimens actually found *in situ* have been used in determining the technical development of the various stages.

The raw material used at Olduvai consists mainly of lumps of quartz and quartzite and lava pebbles as a result of which the majority of the implements, especially in the earlier stages, are essentially ' core tools '. Elsewhere on the continent other materials—quartzite boulders in Uganda, tabular chalcedony in Rhodesia, dolerite and diabase boulders in the Transvaal and Free State, and pebbles again, this time of silicified sandstone and quartzite, in the Cape—required an adaptation of primary flaking technique with an attendant adjustment of form, so that comparison on *form* alone between various regional stages of the Hand-axe culture would be of little value for correlation purposes. For example, evidence for the use of a prepared core technique at Olduvai is entirely lacking whereas in the valley of the Vaal River we find in the ' hen-beak ' and ' horsehoof ' cores evidence for the existence of quite a developed prepared core technique. Again, at Olduvai and at the Cape, implements are made mainly on nodules and pebbles, while in Uganda and in the Vaal the majority are on flakes. As Dr Leakey has pointed out however Chelles-Acheul man had obtained complete mastery over his material and was able to produce just about as symmetrical and well finished hand-axes in quartz as he could in flint. It is this steady development in *technique* which is demonstrated so clearly at Olduvai that can be advantageously used when correlating the various stages in different areas of the continent. Thus we might suggest that Olduvai Stages 1–3 are represented in the Vaal—the only other African region where any detailed sub-division of the Culture is as yet possible—by the South African Chelles-Acheul 1 (Stellenbosch 1). Stellenbosch 2 would thus correlate with Olduvai stages 4–6, Stellenbosch 3 and 4 with Olduvai Stages 7 and 8 and Stellenbosch 5, which appears to bridge the gap between the Chelles-Acheul Culture and the Fauresmith, with Olduvan Stage 9 and possibly also the two later stages which contain certain forms reminiscent of the Fauresmith.

It is of interest that very few flake tools were recovered, but this is probably accounted for by the fact that with the exception of one Stage 10 site almost all the implements were isolated finds within the different horizons. It would appear that none of the debitage flakes found on the camp site of the Stage 10 people were utilized.

Each cultural Stage is fully illustrated by yet another excellent series of line drawings by Mrs Leakey and by photographs, the latter being about the only way to show the semi-crystalline quartz tools which constitute such a high proportion of the Olduvai tools. Each type specimen is described in detail. The evolutionary development of the Chelles-Acheul culture as seen at Olduvai is illustrated by a folder at the back of the book. It might however have been clearer if the specimens had been drawn instead of

photographed as the amount of reduction necessary has tended to obscure the detail. Olduvai Gorge is certainly a unique site and this publication will be absolutely essential to all who are interested in the prehistory of Africa. J. D. CLARK.

KHARGA OASIS IN PREHISTORY. *By* G. CATON-THOMPSON, F.B.A., with a Physiographic Introduction by E. W. GARDNER. *University of London Athlone Press*, 1952. *pp.* xx, 213 *with* 128 *plates and* 38 *text figures. Price*, £3 10*s* 0*d.*

This long-awaited volume forms a worthy sequel to the well-known series of outstanding original contributions to prehistory by Miss G. Caton-Thompson. The fundamental and often pioneering character of her work say on the Badarian Culture (in collaboration with Guy Brunton), or the Faiyum Depression, or the Hadhramaut (in collaboration with E. W. Gardner) and elsewhere, has been of a kind to affect our whole conception of prehistoric development over wide areas of Africa and the Middle East. The full publication of the results obtained during the two seasons' research at Kharga Oasis, carried out under the auspices of the Royal Anthropological Institute in the winters of 1930–31 and 1931–32, has accordingly been expected with the liveliest anticipations. From time to time appetite has been whetted by summary reports and papers dealing with particular aspects of the prehistory or geology of the area but little idea of the full scope of the investigations has hitherto been possible.

The importance of Kharga Oasis to prehistorians lies in the first instance in its geographical position as the southernmost of the important group of oases occupying the angle between the Nile and the Mediterranean coast, east of Cyrenaica. In addition it presents opportunities rivalled only by those of the Faiyum, for the study of past climatic conditions, and their association with the remains of human activity. Like other oases in this group Kharga Oasis lies in the bottom of a deep depression scooped in the desert plateau by wind erosion and deep enough to reach the watertable known to underlie wide areas of the Sahara.

At present, and during recent and historical times, human existence has been mainly dependent on artificial borings for water (the present population so maintained is 8,000), but the frequent occurrence of deposits accumulated round the vents of natural springs active in the late Pleistocene and early post-Pleistocene, testify to the far more favourable conditions of life prevailing at that time. Detailed resemblance between the archaeological content of these formations and others of an alluvial or tufaceous nature along the precipitous eastern and northern margins of the depression enable a comprehensive scheme of climatic and cultural change to be constructed for the oasis as a whole.

The first industrial stage is represented by remarkably rich finds of evolved Acheulian, both in the spring deposits of the floor of the depression and in the sequence of the escarpments. Typologically this material is reported to compare closely with recent finds by A. J. Arkell in the Sudan, and to approximate to Layer F at Tabun Cave in Palestine. It is distinguished from the so-called ' Micoquian ' or latest stage of the hand-axe cultures of Palestine (and the recently discovered Tunisian site of Sidi Zin) above all by much less pronounced development of flake tools.

It is of great interest that although the archaeological record at Kharga appears to be substantially continuous up to the end of the palaeolithic sequence, the Micoquian appears to be lacking. The passage to a pure flake tradition of normal Middle Palaeolithic character—distinguished by particularly striking use of the Levalloisian technique—is accomplished via an ' Acheulio-Levalloisian ' stage approximating much more nearly to the transitional industries of Eastern and Southern Africa such as the Fauresmith, than to the closing phase of the Lower Palaeolithic in more northerly regions.

Stratigraphically later assemblages of typically Levalloisian material are here marked by an increase in the number and finish of retouched tools and a general improvement in the thinness and regularity of primary flakes. The result is by no means without important points of resemblance to the Levalloiso-Mousterian of Cyrenaica and the Levant. It is perhaps a little surprising that Miss Caton-Thompson has not offered any discussion of a possible connection between the two. In Palestine the replacement of the Acheulian by the Levalloiso-Mousterian is so abrupt that it is natural to look elsewhere for the origin of the latter. May it not be that the Levalloiso-Mousterian was substantially developed in the south and south-east of the Sahara before spreading northwards to the Mediterranean coast to replace there a belated Acheulian ?

At any rate no *evolved* Levalloiso-Mousterian has yet been recognised at Kharga, and Miss Caton-Thompson believes that the next stage in the sequence is represented by a peculiar local facies—the Khargan. It must be confessed, that the case for the existence of the Khargan is not wholly above criticism. Much of the material assigned to it comes from surface finds, and the style of retouch taken to be distinctive of it often has an extraordinarily accidental and random look.

The first noticeable break in this history of gradual evolutionary change, comes with the sudden appearance of fully evolved assemblages in the Aterian tradition. The absence of any typological antecedents for the new tool types at Kharga, coupled with their far more frequent and varied occurrence in the Atlas, argues as Miss Caton-Thompson has pointed out, for their origin in the latter region. The finds at Kharga would thus represent marginal outposts of this tradition, at or near the south eastern limit of their diffusion.

The Aterian finds at Kharga are clearly correlated to a climatic phase of increasing desiccation. It is uncertain how great an interval separates them from the next clearly represented term in the archaeological record—a group of finds in frankly Neolithic character. The striking thing about this part of the sequence is the absence of any trace of the Capsian or other representative of the allied blade and burin traditions of Cyrenaica and Palestine.

Two possible explanations may be offered to account for this absence. First that Kharga, in common with other regions of the Saharan hinterland, was depopulated by still further deterioration of the climate ; and secondly that the place of the blade and burin industries was taken by a local survival of the Levalloisian.

It is well known that Miss Caton-Thompson is a proponent of the latter view set forth in detail in her Presidential Address to the Prehistoric Society in 1946, where she coined the name epi-Levalloisian for the postulated culture phase, and suggested that it might also be traced in the Faiyum and Lower Egypt. Detailed criticism of this carefully worked out hypothesis would be impossible in a short review, but in the opinion of the present writer the most recent discoveries in Cyrenaica and along the eastern half of the North African coast generally do little to support it, and raise a number of serious objections. The alternative, as explained fully in a forthcoming publication on Cyrenaica, is to regard the North African blade and burin industries as representatives of a single well marked cultural continuum, linked to the corresponding industries in Palestine on the one hand, and in Europe on the other. Their absence from Lower Egypt at any rate, would be more apparent than real. At the same time positive evidence for widespread desiccation during the Capsian occupation of the Atlas has long been suspected from the evidence of associated fauna and the petrology of the deposits.

Evidence for an increase of rainfall at the time of the first appearance of ' Neolithic ' traits, is well known in many parts of the Sahara, and would serve to account for the

reoccupation of Kharga by peoples practising industries of this sort. The single *in situ* find assigned by Miss Caton-Thompson to the 'epi-Levalloisian'—at Mound Spring KO5b, consisting of a few chisel ended arrowheads of evolved form associated with a few cores and flakes (some of which have faceted striking platforms)—would then belong to approximately the same date, and represent merely an incomplete trace of a much more complex industrial tradition.

Whatever the true explanation of these and other points raised by the facts and discussions contained in this book may be, enough has been said to show their stimulating character and far reaching importance. As for the presentation of the material it will be sufficient to say that the maps and figures and verbal descriptions maintain the same impeccable standard set by previous publications of Miss Caton-Thompson and Miss Gardner. Special mention must also be made of the truly handsome production of the book, and the only minor criticism that comes to the mind is in the matter of proof-reading for misprints—five were noted on page VI. C. B. M. McBURNEY.

THE BABYLONIAN LAWS. *Edited with translation and commentary by* G. R. DRIVER *and* JOHN C. MILES. Vol. I, Legal Commentary, *pp.* XXXI, 517. *The Clarendon Press*, 1952. 50*s net.*

If Hammurabi's astrologers could have informed him of the happy conjunction of two stars of the first magnitude foreboding good fortune and long life to himself and his Laws, his heart would certainly have leaped with joy. In this handsome volume the fortunate conjunction has occurred of two eminent scholars, one an expert in the field of historical jurisprudence, the other the most distinguished British representative of the school of Semitic philology.

Nor has fulfilment failed the expectation that such a combination has aroused. We have at last a commentary on this long-known and most famous collection of ancient laws which is really adequate to the needs of the modern student, whether he is studying the history of ancient law, the development of civilization in the Tigris-Euphrates valley, or Semitic philology, to say nothing of the many related fields of study upon which this commentary and the translation which is, we hope, soon to appear will throw a flood of new light.

It is impossible to overestimate the importance of this ancient document for the history of civilization. It stands out as a landmark in the process which the late Professor R. G. Collingwood described in his book *The New Leviathan* as the 'endeavour to convert every occasion of non-agreement into an occasion of agreement'. Elsewhere in the same book he has said, 'The rule of law means the substitution, in every quarrel which the law can handle, of dialectical methods for eristical methods'. In the 282 laws composing this collection we find examples of many varied occasions of non-agreement in the daily life of the ancient Babylonians. In the preface to the legal commentary the authors sum up admirably the scope and value of Hammurabi's Laws: 'The Laws tell how the Babylonians married and divorced, their settlements of property and its succession at death, and the documents (i.e., contemporary legal documents) describe how they bought and sold land and houses, goods, slaves and beasts. The Laws give a picture of the labour of the shepherd and the pasturing of flocks, the system of farming and irrigation; they regulate the work and wages of agricultural labourers and craftsmen, the duties and fees of the doctor and the veterinary surgeon, of the builder and the shipman; they treat of loans and agency, foreign trade and the purchase of slaves. They and a series of Hammurabi's letters to governors of provinces and other officers give an account of a

tenure of land which has some resemblance to the feudal system ; they show the care taken by the king of the weak and helpless, of the widow and the priestess, and they do what they can to prevent injustice and corruption, oppression and extortion '.

The authors further remark, ' Though ancient, the laws are not primitive ; they are based on sound common sense and good logic, but, like English common law, they retain relics of primitive customs and beliefs. Their aim is the same as that of all systems of law, to make known and provide rules of justice. Crime is to be requited and prevented ; when a man is injured he is to be compensated in the precise sense of that word, an equilibrium is to be brought about. The punishments are sometimes cruel but not more cruel than the penal law of England 150 years ago. The law of contract is simple and well-developed, and there are no traps like the English Statute of Frauds. The draftsmanship is excellent ; it is concise and clearly expressed, and it contains no verbiage of any sort. The law of torts or delicts is fair and equitable, and traces of the conception of negligence are to be found '. It is to be hoped that the publication of this authoritative commentary on such a comprehensive collection of ancient laws may give an impetus to the study of comparative jurisprudence, hitherto so much neglected in English universities.

Some ten years before the definitive discovery by Scheil of the complete text of the Laws, various fragments had been published which were subsequently proved to be portions of the Laws, so that the discovery in 1901–2, when it occurred, was not entirely a surprise. During the excavation of the site of Susa, the ancient capital of Elam, Scheil discovered three large blocks of diorite which, on being fitted together, turned out to be a single conical monument between 7 and 8 feet in height. On the top register is an engraving representing Hammurabi in an attitude of adoration before Shamash, the sun-god and patron of justice. The rest of the stele contains a prologue of $5\frac{1}{2}$ columns, an epilogue of 5 columns, and in between these a number of columns, some of which have been erased, containing the text of the Laws. It is not certainly known when this stele was carried off to Susa, but Scheil conjectured that Shutruknahhunte, king of Elam about 1150 B.C., carried it off after one of his raids on Babylon, and that it was he who erased the missing columns with the intention of inscribing in their place a record of his victories. Scheil also discovered, in Susa, fragments of what appeared to be another copy of the Laws on a similar stele, and with the help of these fragments, together with various clay tablets containing portions of copies of the Laws, it has been possible to restore most of the columns missing on the original monument, which is now in the Louvre.

Since the discovery of the stele of Hammurabi, a number of other collections of laws have been discovered. The earliest of these is a collection of the laws of Bilalama, king of Eshnunna, whose date has been estimated at about two centuries before the time of Hammurabi. Further, four tablets from Nippur have been shown to be the Laws of Lipit-Ishtar, king of Isin *c.* 2217–2207 B.C. An interesting fact in connection with these Sumerian Laws, as they are generally called, is that a passage in one of these fragments has been found to be identical with some lines in a tablet which has hitherto been known as a ' Hymn to Lipit-Ishtar ', but is now recognized as part of the missing prologue to these Sumerian Laws. In addition to these earlier collections there are a number of tablets which contain *simdath sharrim*, or royal ordinances, dealing with special cases, and issued from time to time by the ruler. Various instances of such decrees are mentioned in the correspondence of Hammurabi. Hence it must be borne in mind that the reign of law had begun in Sumer and Accad long before Hammurabi had made the collection generally known as the Code of Hammurabi, although the authors of this commentary point out that it should not be regarded as a code or digest, but as a series of

amendments to the common law of Babylon. They may be compared with the English ' Statutes of the Realm ', and to a certain extent they help us to infer what was the common law of Babylon in the time of Hammurabi.

When the Laws were first published, they caused almost as much disturbance among Old Testament scholars as did Darwin's *Origin of Species*. The many striking parallels between the Laws of Hammurabi and the Pentateuchal legislation seemed to call in question the tradition of the divine origin of the Mosaic legislation. Some of us are old enough to remember the storm raised by the discovery, but today only extreme traditionalists would maintain that the corpus of Hebrew law is wholly independent of the older body of Semitic law and custom of which the Laws of Hammurabi are such an important treasure-house. Our authors remind us that when once the minds of Biblical scholars had been set at rest with regard to the relation between the Laws of Hammurabi and the laws of Moses, their interest in the former ceased, and apart from occasional studies, this is the first serious study in English of all the various aspects, sociological, legal, philological, and historical, which offer themselves to the student. It is hard to refrain from superlatives in speaking of the way in which this tremendous task has been carried out, but before closing this inadequate review, a word of regret must be expressed for the sad announcement with which the preface to the legal commentary ends. These are the words, ' The editors of the present book had hoped, when they published their edition of the " Assyrian Laws ", after the completion of their work on the Babylonian Laws, to have turned their attention to the Hebrew Laws ; but the old age of one of them, and the delays caused by the war and the consequent absence of the other on national service forbid this, and the task must be left to others '. One can only hope that the standard and example here provided, as well as the immense store of material here accumulated, will stir some of the younger generation of British scholars to send in such another pair to bat on the splendid wicket prepared for them. S. H. Hooke.